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NEW ORLEANS  
MEDICAL AND SURGICAL  
JOURNAL

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INDEX TO VOLUME SEVENTY-ONE

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JULY, 1918,

TO

JUNE, 1919.

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NEW ORLEANS.

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# INDEX TO VOLUME SEVENTY-ONE

FROM JULY, 1918, TO JUNE, 1919.

## A.

A Corps of Pharmacists for the Army— <i>Editorial</i> .....	491
Acute Nephritis in Childhood, by Solon G. Wilson, M. D.....	100
Address of Incoming President of Orleans Parish Medical Society, by H. E. Bernadés, M. D. ....	403
American Society of Tropical Medicine.....	521
Antityphoid Serotherapy; Preparation and Application of the Serum, by Prof. A. Rodet. <i>Translation</i> by Lodilla Ambrose, Ph. M.....	388
Army School of Nursing— <i>Editorial</i> .....	57

## B.

Bass-Watkins Agglutination Test for Typhoid, by Foster M. Johns, M. D.....	22
Biological Research on the Wounds of War: Phenomena of Proteolysis in the Wounds of War, by A. Policard, M. D. <i>Translation</i> by Lodilla Ambrose, Ph. M. ....	154
Blood Chemical Methods in Diagnosis and Prognosis, by R. B. Gradwohl, M. D.	456
Board of Health at New Orleans— <i>Editorial</i> .....	5
Broncho-Pneumonia Following Measles, by Sidney F. Braud, M. D.....	512

## C.

Control of Venereal Disease, The— <i>Editorial</i> .....	381
Correspondence. ....	518
Cross-Eyed Child Neglected, The, by J. Hume, M. D.....	206

## D.

Delusion and Dream, A Comment on the "Freud Theory," by S. T. Tucker, M. D. ....	467
Dermal Myiasis Caused by <i>Lucilia Seratica</i> , Memorandum on a Case of, by W. V. King, M. D.....	106
Dermal Myiasis, Clinical Phase of a Case of, by Isadore Dyer, Ph. B., M. D...	105
Diagnostic Method, Treatment and Prophylaxis of Malaria as Conducted in the Sanitation of Brioni, Istrie (Austria), in 1899 to 1902, by D. Rivas, Ph. D., M. D.....	322
Dietetic Treatment of Liver Diseases, The, by Allan C. Eustis, B. S., Ph. B., M. D. ....	59

## E.

Early Diagnosis and Treatment of Middle-Ear Diseases of Children, The Importance of an, by M. P. Boebinger, M. D.....	36
Eclampsia, Treatment of, by Hilliard E. Miller, M. D.....	28
End of Influenza— <i>Editorial</i> .....	263
Epidemic Meningitis—With Special Reference to Types of Meningococcus and the Transmission of the Disease, by Charles W. Duval, M. D.....	312

## F.

Function of the Gall-Bladder, The, An Experimental Study, by F. C. Mann, M. D. ....	80
---	----

## G.

Gall-Stone Disease Complicating Pregnancy, by A. P. Heineck, M. D.....	348
--	-----

## H.

Happy New Year— <i>Editorial</i> .....	304
Histological and Bacteriological Investigation of a Juxta-Articular Nodule in a Leper, The, by Donald H. Currie and Harry T. Hollman.....	384

## I.

Increase in the Army Medical Department— <i>Editorial</i> .....	123
Inguinal Approach in the Cure of Femoral Hernia, The, by Lucian H. Landry, M. D., F. A. C. S.....	235
Is Argyrol Useless? by Henry Dickson Bruns, M. D.....	426

## L.

Laboratory as an Aid in the Diagnosis of the Pneumococcal Complications of Influenza, The, by Foster M. Johns, M. D.....	421
League of Nations, The Proposed, by G. H. Théard, Esq.....	393
Lemon Juice in Pellagra, Effect of, by J. N. Roussel, M. D.....	283
Local Anesthesia for Operations for Goiter, by A. A. Keller, M. D.....	305
Louisiana Leper Home, The— <i>Editorial</i> .....	1
Louisiana State Medical Society Notes.....	406

## M.

## "Medical Experiences Overseas:"

By John B. Elliott, Jr., M. D.....	470
By John T. Halsey, M. D.....	473
By John W. Morris, M. D.....	474
By I. I. Lemann, M. D.....	476
Medical Profession and the Great War, The, by Col. Henry Page, M. C.....	11
Medical Reserve Corps, The, by Isadore Dyer, M. D.....	11
Medical Reserve Corps and Medical Military Activities, by Major Frank Simpson, M. R. C.....	19
Meeting of the Louisiana State Medical Society— <i>Editorial</i> .....	119
Meeting of the State Society— <i>Editorial</i> .....	455
Mobilization of Physicians— <i>Editorial</i> .....	58
Mortuary Report.....56, 122, 176, 218, 260, 300, 344, 380, 416, 452, 488, 530	

## N.

New Technic for Suspension of the Kidney, A, by Rawley M. Penick, M. D., F. A. C. S.....	444
News and Comment.....49, 116, 165, 209, 257, 294, 335, 372, 409, 447, 479, 522	
Notes on Tropical Diseases, by Lodilla Ambrose, Ph. M.....	272

## O.

Obituary—Dr. deRoaldes— <i>Editorial</i> .....	5
On Some Minor Matters, by H. D. Bruns, M. D.....	145
Our Diamond Anniversary— <i>Editorial</i> .....	453

## P.

Peace— <i>Editorial</i> .....	261
Popliteal Aneurysm—Matas Operation—Recovery, Report of a Case of, by George T. Tyler, Jr., A. M., M. D.....	281
Postgraduate Study of Medicine— <i>Editorial</i> .....	345
Practical Congenital Syphilis, by Charles James Bloom, S. Sc., M. D.....	436
Presentation of an Obturator, by A. G. Friedrichs, M. D.....	367
Procain and Novocain Identical.....	48
Proceedings of the American Society of Tropical Medicine.....	322
Publications Received.....54, 121, 174, 217, 298, 343, 378, 414, 451, 487, 528	

## R.

Radium Treatment of Fibroid of the Uterus, by E. C. Samuel, M. D.....	69
Recollections of the War in Europe, by Capt. L. J. Genella.....	493
Report of President of Orleans Parish Medical Society for 1918, by Paul J. Gelpi, M. D.....	399
Resistance of the Ova of <i>Toxascaris Limbata</i> , Some Studies on the, by Meyer Wigdor, M. D.....	264
Retro-Pharyngeal Abscess, by M. P. Boebinger, M. D.....	249
Return of the Tulane Unit (Base Hospital 24)— <i>Editorial</i> .....	419
Review of the Sessions of the Section on Surgery, General and Abdominal, Meeting of the A. M. A., Chicago, by H. B. Gessner, M. D.....	108
Running Ear, A, by George J. Taquino, M. D.....	203
Ruptured Gastric and Intestinal Ulcers, by H. K. Kostmayer, A. B., M. D...	125

## S.

Shell-Shock—Psychoneurosis of War, by C. S. Holbrook, M. D.....	191
Simple Surgical After-Treatment, A, by E. L. Sanderson, M. D.....	74
Society Largely Responsible for Some of the Most Potent Factors of Nervous and Mental Diseases, by J. C. King, M. D.....	132
Sodium Citrate in the Treatment of Pneumonia, With Report of Cases, by W. H. Weaver, M. D.....	181
Some Psychology of Syphilis— <i>Editorial</i> .....	454
Some Spanish Views on Spanish Influenza. <i>Translation</i> by Lodilla Ambrose, Ph. M. ....	222
Spanish Influenza— <i>Editorial</i> .....	219
Special Notice— <i>Editorial</i> .....	221
Spinal Analgesia, With a New Local Anesthetic, by P. Jorda Kahle, M. D...	366
Stabilization of American Medicine, The— <i>Editorial</i> .....	301
Standardization of Hospitals, The— <i>Editorial</i> .....	418
Students' Army Training Corps, The— <i>Editorial</i> .....	220
Surgical Treatment of Potts' Disease, by Paul A. McIlhenny, M. D.....	287

## T.

Tenth Meeting of the Congress of American Physicians and Surgeons— <i>Editorial</i>	490
The Control of Venereal Diseases— <i>Editorial</i> .....	489
The Physician, The Army, and The Civil Population— <i>Editorial</i> .....	177
Thrift and War-Savings Stamps and Liberty Bonds, by Mr. Charles Janvier..	6
Thyroidectomy Under Local Anesthesia, by Carroll W. Allen, M. D.....	242
Tuberculosis in Army and Civil Practice, Important Factors Relative to, by Wallace J. Durel, M. D.....	92

## V.

Venereal Diseases An Active Public Health Question— <i>Editorial</i> .....	3
Vomiting in Infancy, by L. R. DeBuys, B. S., M. D., F. A. C. P.....	141

## W.

War Necessity— <i>Editorial</i> .....	180
Wounds of War From the Biologist's Point of Observation, The, by Ernesto Bertarelli. <i>Translation</i> by Lodilla Ambrose, Ph. M.....	368

## BOOKS REVIEWED IN VOLUME SEVENTY-ONE

American Illustrated Medical Dictionary, The—DORLAND.....	53
Anatomy of the Human Body—GRAY.....	413
Animal Parasites and Human Disease—CHANDLER.....	339
Antiseptics, A Handbook of—DAKIN-DUNHAM.....	120
Autobiography of an Androgyne—LIND.....	527
Blood Transfusion, Hemorrhage and the Anemias—BERNSTEIN.....	171
Case Histories in Obstetrics—DE NORMANDIE.....	298
Clinical Cardiology—NEUHOF.....	53
Clinical Disorders of the Heart-Beat—LEWIS.....	526
Clinical Diagnosis—TODD.....	376
Clinical Medicine, A Treatise On—THOMSON.....	376
Clinical Medicine for Nurses—RINGER.....	485
Cystoscopy and Urethroscopy, Treatise Of—LUYS.....	216
Diseases of the Heart and Blood Vessels—SATTERTHWAITE.....	377
Diseases of the Male Urethra—KOLL.....	341
Diseases of the Skin—HARTZELL.....	53
Diseases of the Skin—SUTTON.....	53
Emergencies of a General Practice—MORSE.....	413
Essentials of Volumetric Analysis—SCHIMPF.....	174
Genito-Urinary Diseases and Syphilis—MORTON.....	341
Genito-Urinary Diseases and Syphilis, Compend of—HIRSCH.....	485
History of Medicine, An Introduction to the—GARRISON.....	119
Hygiene for Nurses—MUMEY.....	528
Information for the Tuberculous—WITTICH.....	485
Interpretation of Dental and Maxillary Röntgenograms—IVY.....	172
Johnson's Standard First-Aid Manual—KILMER.....	377
Long Heads and Round Heads—SADLER.....	120
Manual of Physiology—STEWART.....	526
Massage and the Original Swedish Movements—OSTROM.....	528
Materia Medica, Pharmacology, Therapeutics and Prescription-Writing—BETHEA.....	173
Medical Clinics of North America, The.....	485
Medical Record Visiting List.....	298
Medical War Manual, No. 3 and No. 4.....	120
Naval Hygiene—PRYOR.....	340
Newer Knowledge of Nutrition, The; The Use of Foods for the Preservation of Vitality and Health—McCOLLUM.....	484
Oral Sepsis in Its Relationship to Systemic Disease—DUKE.....	172
Paper Work of the Medical Department of the United States Army—WEBSTER.....	527
Physical Diagnosis—ROSE.....	120
Practical Medical Dictionary, A—STEDMAN.....	486
Practical Medicine Series.....	173, 340, 528
Practical Treatment, A Handbook of—MUSSEY-KELLY.....	173
Prescription-Writing, A Manual of—MANN.....	486
Principles of Bacteriology—EISENBERG.....	339
Principles of Hygiene, The—BERGEY.....	376
Quarterly Medical Clinics—SMITHIES.....	486
Recollections of a New York Surgeon—GERSTER.....	54
Röntgen Diagnosis of the Diseases of the Alimentary Canal, The—CARMAN- MILLER.....	413

Seriousness of Venereal Disease, The—CARLETON.....	341
Studies in the Anatomy and Surgery of the Nose and Ear—SMITH.....	172
Surgery and Diseases of the Mouth and Jaws—BLAIR.....	215
Syphilis and Public Health—VEDDER.....	216
Textbook of Physiology for Nurses—CHRISTIAN.....	526
The Physician's Visiting List.....	341
The Ungearred Mind—CHASE.....	526
Tropical Diseases. A Manual of the Diseases of Warm Climates—MANSON..	340
Tropical Surgery and Diseases of the Far East—MCDILL.....	486

## CONTRIBUTORS OF ORIGINAL ARTICLES IN VOLUME SEVENTY-ONE

ALLEN, CARROLL W., M. D.	KAHLE, P. JORDA, M. D.
AMBROSE, LODILLA, Ph. M.	KELLER, A. A., M. D.
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## EDITORIAL

### THE LOUISIANA LEPER HOME.

During the month of May the Commission from the United States Public Health Service visited the Louisiana Leper Home, among other places, in the survey of favorable sites for the National Leprosarium authorized by Congress in 1916.

The Louisiana Leper Home began operation on December 1, 1894, when ten lepers were transferred from the pesthouse in New Orleans to the present site of the home. The old cabins at first occupied were habitable, though crude.

In twenty-four years a colony of modern cottages, well constructed, with conveniences of steam heat, running hot water, with modern facilities for bathing and other comforts, has come into

existence. Of nearly three hundred inmates, almost all have voluntarily sought the asylum of the institution, which has been diligently and faithfully administered by the Sisters of Charity of the order of St. Vincent de Paul. From 1896 until 1902 the Board of Control in charge of the home had little interest in the treatment of the disease; but in the past sixteen years treatment has been offered and accepted, with the result that twenty cases have been discharged as cured and a large number have been ameliorated.

The average admissions for the period of existence have been about one a month. In some years the number has been larger than in others.

The point of striking importance in the biennial reports of recent years has been the types of recent admissions, in which the tubercular form is by far the largest number. The conclusion must be drawn that old cases of leprosy outside the home are no longer found and that the recent admissions are of recent occurrence.

Leprosy has been known in Louisiana and along the Gulf of Mexico as far as Florida since the last quarter of the eighteenth century. The proximity to the West Indies and its peoples, known to have lepers among them, and the more frequent contact with the colonies of Latin countries, probably will explain the importation of leprosy to Louisiana so early in the history of this country. The Atlantic seaboard has less occasion for such and, except in the French colonies of Nova Scotia, no like history of leprosy obtains. The surviving lepers at Tracadie, New Brunswick, would argue this.

The opportunity of studying leprosy in Louisiana and the need of segregating the victims of this disease together claimed early attention. The incidence of leprosy in the United States is not known; it is known, however, that the majority of the States have had one or more lepers in the past ten years and that the disease has been reported with much more frequency in recent years. The need of national care of leprosy has been recognized because it is so widespread.

The Louisiana Leper Home has succeeded in segregating lepers so far as is known. More than this, it has demonstrated that this may be done without publicity and with the willing consent of the leper in most cases. The segregation of lepers has permitted their treatment in some cases to the point of success.

A National Leprosarium could do even more, for it would add the scientific laboratory and the intensive method of application of existing treatments.

The location of a National Leprosarium is momentous, because it must consider provisions for many years to come, for leprosy has been let loose over most of the United States and the disease is slow in developing.

The majority of cases in the United States to-day are found in New York, Massachusetts, Florida, Mississippi, Texas and Louisiana on the Atlantic and Gulf seaboard, and in California on the Pacific side. The Middle States have shown less of the disease, excepting Minnesota.

The conclusion that the disease develops more along the seacoast might be drawn, and would argue that any site chosen for a national hospital should be as remote as possible from the places of ready spread of the disease. An equable climate would seem to be the ideal in choosing a site.

It might be added, finally, that in Louisiana the objective in establishing a Leper Home was to eradicate the disease in the State; if the Federal Government takes over the Louisiana Leper Home no such objective can be attained for another generation.

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### **VENEREAL DISEASES AN ACTIVE PUBLIC HEALTH QUESTION.**

The Louisiana State Board of Health has undertaken the attack on venereal diseases. A report on the activity of the Board has recently been issued and its purposes are comprehensive. Provision is made for the careful record of each patient and disease, to be reported by name or number to the Board of Health, together with data as to the degree of infection and probable source. The migratory patient is required to give the record of prior treatment and the name and address of physician. While the name of the patient is not required on first report, neglect of treatment, or failure to give the information as to prior treatment, makes it mandatory that the name of the patient should be recorded.

Hospital patients are to be recorded and reported, and the superintendents of hospitals are to be held liable for the notification to the Board of Health of any violation on the part of the patient. The law covers also the cases of criminals and prisoners who may be venereally diseased.

There is a provision for the marriage license which must require a form of certificate showing freedom from venereal disease on the

part of the male contracting party within seven days prior to issuance of the license. The laboratory tests are to be made by the State Board of Health or by laboratories recognized by the State Board of Health. Infraction of the law by a clerk issuing license is liable to imprisonment of one to five years, and disclosure of information so legally obtained is liable to punishment by imprisonment. A physician making false statement in the certificate will be guilty of perjury and will lose his license. Ministers or others empowered to conduct the marriage ceremony who celebrate such marriage except under a license properly dated within seven days are liable to imprisonment of one to six months.

Hospitals for venereal diseases, or arrangement in existing hospitals for their care, is contemplated. Special medical officers, qualified by previous instruction in venereal disease, are to be assigned to care for such cases.

The report emanating from the State Board of Health is much more comprehensive than our digest can convey, but it may be summed up as a most pretentious program and promiseful of many difficulties in administration.

The whole question not only invites, but demands, solution, and probably is more integrally vital in the economic salvation of the human race than any other; it always has been, and must be for a long time to come. Morals and venereal disease are concomitant, and the elasticity of the first will gauge the degree of the second. The prohibition of prostitution will not stop venery and law will not make morals. The enactment of laws will surely be educative, and their enforcement will tend to restrict immorality, and perhaps may in time induce better habits.

The medical profession is supremely interested, and Louisiana has just the same problem that faces all other States and all other countries in trying to meet a world-wide disorder and to overcome it.

We shall watch the efforts of the State Board of Health with much interest and with the hope of success. We believe, however, that any provision leading to the violation of the professional secret and disturbing the close and confidential relation between patient and physician should be eliminated. Not only is such a provision a violation of a sacred principle, but we fear that it would work against the very end sought to be attained by the law. A great deal has been accomplished by propaganda already, and more is to be gained by urging and teaching than by treating the careless or unfortunate as criminals.





DR. ARTHUR W. de ROALDES.

**BOARD OF HEALTH OF NEW ORLEANS.**

We have before us the biennial report of the Board of Health for the Parish of Orleans for 1916 and 1917. It makes interesting reading, and one experiences a sense of gratification after looking it over. The Board claims three conspicuous achievements for the two years—a new low death rate; diminution of communicable diseases; the eradication of plague in rodents.

It might well have added one step forward, the opening of the Isolation Hospital in December, 1916, equipped with the best safeguards and conveniences of the day. Only smallpox cases were received during 1917, but quite a number were treated, with the percentage of recoveries given as 100. This perfect mark entitles the Board, the Superintendent of Public Health, Dr. W. H. Robin, and the attending physician of the hospital, Dr. J. G. Stulb, to the warmest commendation.

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**OBITUARY**

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**DR. DE ROALDES.**

Arthur Washington de Roaldes, an esteemed collaborator of the *JOURNAL* for many years, a much-loved friend, died on June 12, 1918, aged over 69 years.

Born in Opelousas, La., he lived most of his life in New Orleans, though he studied in Europe and had traveled extensively and frequently. From the time of his graduation in medicine, his was a most active and useful career. As early as during the Franco-Prussian War of 1870 to '71 he distinguished himself for bravery under fire while serving with the Red Cross, receiving later the Cross of the Légion d'Honneur as a token thereof. In after years he was promoted to a high rank in the order.

To enumerate all of the achievements of De Roaldes would be a lengthy task and beyond our purpose. Yet, as his blindness during the last twenty years of his existence gradually removed him from the prominent position he occupied amid professional activities, it is not amiss to recall some of the most notable.

As House Surgeon of the Charity Hospital in the days when that officer had most of the surgical as well as executive duties on his shoulders, with a comparatively small staff to assist him, he established many improvements, and two, which did not bear fruit during

his incumbency, were due to his initiative—the inauguration of the ambulance service and the introduction of trained nurses in the hospital.

After his connection with the Charity Hospital, he was the first in the South to limit his practice to the ear, nose and throat, and he soon founded the Eye, Ear, Nose and Throat Hospital, which from the most modest beginnings became one of the most important institutions of its kind in the world. This hospital was his creation; he watched over it, nurtured it, worked for it like for a beloved child. It bears his impress, and he needs no other monument.

Why say more? The above would be plenty for any life. He was a good friend, an affectionate teacher, a real doctor, a useful citizen.

He had honors enough: valued member of special and general medical societies, here and abroad, national and local; emeritus professor of diseases of the eye, ear, nose and throat in the Graduate School of Medicine of Tulane University; chief surgeon of the Eye, Ear, Nose and Throat Hospital.

To his beloved and loving wife, whose devoted care made it possible for him to continue a fruitful existence long after the loss of his sight, we must express our most deep and sincere sympathy.

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## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### THRIFT AND WAR-SAVINGS STAMPS AND LIBERTY BONDS.\*

By MR. CHARLES JANVIER, New Orleans.

In the absence of Hon. P. H. Saunders, of New Orleans, who was to have addressed the Society on this subject, Mr. Charles Janvier, of New Orleans, was introduced and spoke as follows:

*Mr. President, Members of the Louisiana State Medical Society,  
Ladies and Gentlemen:*

Shall we continue to own ourselves, or shall we permit the German Kaiser to own us? There is no exaggeration in that question, and the answer which must be returned must not be expressed in bombastic phrase or in high-swelling periods. It must be returned in

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\*Delivered at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

deeds which shall speak for themselves with an eloquence far greater than language can possess, and with a force which shall cause the soul of the nation to be stirred to its profoundest depths and crossing across the broad Atlantic shall strike terror into the craven soul of the German despot as he crouches, monstrous and murderous, upon his dishonored throne. (Applause.)

We know, ladies and gentlemen, the boys in khaki, and those in blue, are going to do their duty unflinchingly and heroically, but they must have behind them the united and determined people which will cause them to hold their heads up higher, if they know and feel that every fiber of American manhood tingles with the same love of country and with the same resolution as nerves their courage and animates their spirit.

The war in which we are engaged is not alone a war of nations; it is a life-and-death struggle between two great principles of government—autocracy on the one hand, with its imperious and barbaric maxim that “might makes right,” and democracy on the other, with its guarantee of peace and good-will to all men, of freedom to the individual and of independence to the State. Between these two contending principles there can be no compromise. It must be a fight to a finish, and in that fight must be enlisted not only the heroism of those whom we have sent to the front, but the stern determination of those who remain behind.

We are accustomed to say the boys at the front will do their bit. Ladies and gentlemen, in what does that bit consist? It consists in leaving home, in leaving their mothers and wives and sweethearts and children and their jobs. It means leaving everything to take part in the greatest game of chance the world has ever known: on one side, life; on the other, victory. When victory is earned, what do they get, those who survive? The right and privilege to return home and to begin life over again, while we who have been staying at home all the time and enjoying the comforts of life have forgotten in a large measure the sacrifices that were made for us on the other side.

I need not tell such an intelligent audience as this that there are three things essential to the successful prosecution of the war—men, money and material. Men we will have from the loins of the people; money must come from us, and, with this money, material will be purchased. But bear in mind, ladies and gentlemen, the government does not want money only for money; it wants money

for what money will get, and we ought to be careful not only to save our money, but not to become competitors with the government in using labor and material for our own selfish purpose that might better be employed in furnishing equipment to the soldier at the front. If this suit of clothes I have on strikes me as being a little shabby, I ought to wear it longer and not get another suit, which I do not urgently need, because in buying another suit I might deprive some soldier of the material that goes into it and deprive the government of the labor necessary to make it. (Applause.)

The United States Government has devised two ways through which to raise money to prosecute this war. One is by taxation, and the other by bond issue. Economists have not yet decided what proportion of the expenditures should be borne by bond issues, which transfers a portion of the debt to posterity and makes posterity pay a part of the price we pay for liberty, the same liberty they will have, and what proportion taxation should pay. Some contend that it is 50-50, and others 40-60. But there is one thing absolutely certain, on which both political economists and business men will agree, and that is the United States Government is going to get the money in one way or the other. If the people will loan their money to the government, the government promises to return the money at a stated period, and the United States Government has never failed to carry out a promise of that character. While the government is using that money the government promises and will pay the highest rate of interest ever paid by the United States Government since the Civil War. Now, if we do not want to lend money to the government, the government will take it from us in the shape of taxation, and I do not suppose any man has ever heard of any interest being paid upon taxes, or any government returning taxes once paid to the government. Therefore, the proposition is simple—if you do not voluntarily lend money to the government, the government is going to get it, for we are going to win this war. (Applause.) If it takes an army of five million or ten million men, every resource this country possesses will be used, and money will be spent in order that Old Glory be victorious in the end. (Applause.) Not only will we be victorious because of the heroism of our soldiers and of the determination of our people, but there is another reason, stronger, perhaps, than those two, and that is, we have right upon our side, and right, liberty and justice must eventually triumph, for upon the triumph of these

three great principles our safety, our happiness, our prosperity absolutely depend.

Some one once said that it was not the genius of Wellington, nor the gallantry of the allied armies, nor the timely arrival of Blucher which made impossible the victory of Napoleon at Waterloo, but the irrepressible operations of the unconquerable laws of justice and liberty; and those same laws operate with more inherent force to-day than in the time of Napoleon, and their operation may hasten or delay victory according to the way in which the people do their duty.

I have been asked to say something specifically to you on the question of War Stamps and Thrift Stamps. I had supposed by this time this subject was very familiar to every man, woman and child here. It is the most ingenious, the most generous proposition ever submitted to a people in the way of investment by any government.

There are three purposes to be borne in mind in connection with Thrift Stamps. First, raising money for the government; second, inculcating a spirit of thrift and the habit of saving among the people; and the third purpose is to bring every man, woman and child into closer relationship with Uncle Sam or with the United States Government. As for the second of these three purposes, our great President said, when the campaign was launched, if this country derived nothing more from this great war than the habit of saving, it would be worth to the country more than all the money and material expended in the war; and I take it he is a good judge, for he is sound, in my opinion, in pretty nearly everything he has touched thus far. (Applause.)

These War Savings Stamps and Thrift Stamps can be purchased almost everywhere. When I say we ought to lend our money to the Government I do not mean that you should lend your loose change; I do not mean that you should lend that part of your surplus that you have in a savings bank. You can easily do that. But I mean that you must put that money in Savings Stamps and Liberty Bonds. In addition to that, you should put money in it that you have gathered through self-denial, because self-denial is the door through which sacrifice enters, and until we have made sacrifices we have not associated ourselves with this war in the way we should. The men on the other side are making sacrifices, and I care not what sacrifices any of us may make on this side of the water they

will in no way compare with the sacrifices that are being made by the boys in the trenches and on the sea.

The War Stamps, the Thrift Stamps, your Liberty Bond was not invented for any of us to take refuge behind it. As Mr. McAdoo said the other day, we do not want 25 cents from people that ought to be \$5 patriots, and \$5 from people who can well afford \$50. Ladies and gentlemen, who shall be the arbiter? I say conscience. Conscience never makes a mistake. The man who follows his conscience will never make a mistake. Let him invest in a Liberty Bond and in War Savings Stamps; if he follows his conscience, and it tells him to invest, he will have done his duty. Duty is the sublimest word in the language. A sense of duty, said Daniel Webster, pursues us ever. It is omnipresent, like the Deity.

When that illustrious American, whose character enriches the annals of humanity and sheds imperishable luster upon the pages of American history, Robert E. Lee, dismissed his half-starved and tattered veterans who suffered every form of privation in upholding the cause which they believed to be right, he told them that they carried to their homes the satisfaction which proceeds from a consciousness of duty well performed; that, in the eyes of the world, they had covered themselves with glory which shall remain undimmed and undiminished as long as human virtue and human patriotism remain the basis of admiration and esteem; that their greatest glory consisted in the fact that their able and venerated commander had told them they had done their duty, and had done it well. When conscience tells you that you have done your duty, and have done it well, you are all right.

General Pershing, when he reached Paris, visited the grave of Lafayette, it is said, and when he stood at that sainted spot he bowed his head and whispered, "Lafayette, we are here." It seems to me, ladies and gentlemen, that the great American people should stand in spirit beside the grave of George Washington, the great father of this splendid Republic, and with bowed heads should send to his illustrious shades this thrilling message, "George Washington, we are here. We are here in unity of spirit, with unflinching determination of purpose to preserve this Republic which you and your illustrious associates established for us. We are here to defend and protect that legacy of freedom you bequeathed to us. We are here to carry out the trusts committed to our hands. We are here, George Washington, in the accomplishment of that great and splendid purpose. We are here to pledge our lives and our

sacred honor." And if the American people will stand at that hallowed spot and in spirit make that pledge and live up to it, liberty and justice will rule the world. With our spirits and with the spirit of this great nation glorified by the lofty idealism of the issues for which we are contending, and which have been so eloquently expressed by our great President in his vivid messages to the American people, can it be possible that the least one among us who will prove recreant to his humblest duty and forfeit his share in that glory which will come to all of us when our boys come marching home, bearing triumphantly Old Glory crowned with the laurel-wreath of victory? (Applause.) I, for one, don't believe it. I have an abiding faith in the patriotism of my people, which grows stronger and greater day by day, and becomes more gripping as each eventful day passes along to take its eternal place in the expanding landscape of the past.

Will you permit me to express a sentiment which I saw printed in a newspaper the other day, and which I think ought to be the feeling in every American breast?:

"Here's to the Blue of the wind-swept North,  
When we meet on the fields of France.  
May the spirit of Grant be with you all  
As the Sons of the North advance!

"Here's to the Gray of the sun-kissed South,  
When we meet on the fields of France.  
May the spirit of Lee be with you all  
As the Sons of the South advance!

"Here's to the Blue and the Gray as One,  
When we meet on the fields of France.  
May the spirit of God be with us all  
As the Sons of the Flag advance!"

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## THE MEDICAL RESERVE CORPS.\*

By MAJOR ISADORE DYER, M. R. C., New Orleans.

*Mr. President, Ladies and Gentlemen:*

You have heard a most interesting and illuminating address from the President. You have heard a most eloquent and inspiring address by a gentleman (Mr. Janvier) whom I have heard a great many times speak eloquently and well, but I have never heard him speak in terms which have been more inspiring than in the message

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he has brought to us to-night. I refer to the two previous speakers because I have no formal address. It was not intended that I should have; I am merely to talk for a few minutes about the Medical Reserve Corps.

To many of you there is no necessity for referring to the Medical Reserve Corps, because you are familiar with what it means. To some, the Medical Reserve Corps is not yet an open book. This is the first time that it has been my privilege to speak on this subject to so many men of the Louisiana medical profession at one time. I have had the opportunity of speaking to a few at a time; I have had the opportunity of speaking to most of those who have gone from Louisiana to the front.

It is the desire of the Medical Reserve Corps Examining Board to have a personal conversation with more men in Louisiana, to invite them into the Corps, to recommend them for commissions. An appeal has gone out from Washington in such a way that it has been, in a large measure, the occasion for the visit of our distinguished guests this evening to bring to you the message of the need for Medical Reserve Corps officers at this time and now.

Within the last forty-eight hours I have had a man say to me, "When you need me, let me know." We need you now! The same message goes to you who are not in the Medical Reserve Corps. We ask that you get an application blank at the office, or, if you live out of town, we will send it to you, with instructions as to how you may make your examination papers complete. We will fix the day for examination that is convenient for both of us. These examinations may be taken in the morning between half-past nine and eleven o'clock in this building.

From the Surgeon General's office, and from those of us who represent the Medical Reserve Corps examining forces, the message goes out that we need you now. Five thousand medical officers are called for, and the State of Louisiana is expected to furnish nearly 200 more than she has already supplied, and she has supplied already over 300. The message should be taken back by those of you who go to the smaller country places. The bulletins sent out by the Medical Section are sometimes read, sometimes not. The message should go out that the Medical Reserve Corps needs reinforcements. The army has estimated that for every 1,000 recruits there should be ten medical officers, and of these, seven should be of the Reserve Corps. The regular Army Corps has now about 700 officers, with many vacancies to make up the 2,000 personnel. The

Medical Reserve Corps now has in actually commissioned officers over 22,000, and in the service over 14,000. If we are to have a Medical Reserve Corps, it should be a real Reserve Corps. In other words, if the medical profession is to constitute itself a Reserve Corps for service, there should be at least one man at home ready for service for every one who goes into active service. If we have now 22,000 men, we should have twice that number available. There will be, at the end of this year, 2,000,000 soldiers; there should be 20,000 doctors. If 20,000 doctors are needed, it will take most of the Reserve Corps now commissioned. If we need 2,000,000 men more before another year, it will need 20,000 doctors more, who should be in training, ready for service, but who may go on with their usual professional work at home until they are called.

The time has passed when there should be much distinction between medical services of the government. I heard and read with interest and pleasure the address delivered in Memphis, before the Southern Medical Association, by Col. Noble, Executive Officer of the Surgeon General's office, in which he made the remark that this war has put the burden of the Medical Department of the Army upon the profession of the United States. That statement means a great deal. A little body of men, of some 700, in the Regular Army, is now a part of the medical service in which there are more than 20,000 men of the Medical Reserve Corps. Those 700 men, so far as they could, have devoted a large amount of their time to the training of the Medical Reserve Corps to make them efficient medical officers. If any one has the privilege of visiting the training camps to see what kind of men are made of the ordinary doctor, who usually follows the routine of every-day life, adjusting his own engagements, keeping them as he pleases, who is forced into the military regime, where he eats and drills and goes to school at regular hours, it is an inspiration. All that is comprised in the text which has been given me to-night.

I have been asked to present a message to you, and do it in as strong terms as I possibly can. Medical men who answer the call of their conscience, who have not yet come into the Medical Reserve Corps, should do so now, and not wait until somebody goes after them with a pressing invitation.

When at the beginning, nearly a year ago, it was agitated that conscription should be made a provision in order to swell the Medical Reserve Corps to the proper proportions, your Medical

Section went on record, in representing the policy of this State, that conscription in Louisiana was not necessary. I believe that the call which has been made to the profession has been well answered. Up to the present time we have gotten 14 per cent of the profession of this State. Many members of the medical profession of this State have come in voluntarily, and I am optimistic enough to believe that the additional quota required from Louisiana can be readily accomplished.

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## THE MEDICAL PROFESSION AND THE GREAT WAR.\*

By COL. HENRY PAGE, M. C.,

Commanding Officer, Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, Ga.

In this great city, where the traditions of glorious France and her sister, America, are united, one need not speak of liberty, nor is it necessary to stimulate a patriotic flame that already burns so fiercely.

For six months it has been my good fortune to have your Tulane Unit, Base Hospital 24, under my command at Camp Greenleaf, and it was from this privileged association, with splendid, noble fellows, that I learned much of New Orleans, and had born within me a desire to see this queen of cities which can send forth to war such men. I am, therefore, happy to be with you, and to profit by my association with you.

My address to-night is upon the medical profession and the great war. It is intended to be an inventory, or stock-taking of the assets and liabilities of the medical profession, so that we may, all of us, better balance the ledger of our lives and know where, as a profession, we stand.

In a brief address it is not possible to deal with statistics, and I shall not attempt to do so. On the other hand, I do not wish to generalize too broadly, and I do not think I am doing so when I express the belief that at this moment Germany would be master of the world had not American food, ammunition and doctors been sent to aid the Allies.

Comparison of vital necessities are futile, and one cannot state that of all the gifts we made to the Allies the gift of our doctors is the most valuable, but we can say that up to the beginning of 1918

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the value of America's contribution of man-power was 95 per cent medical.

In the months to come, American fighting troops in France will be vastly increased, but the value of the doctor will be only relatively diminished. Like the battle plane and the 16-inch cannon, the doctor is a necessity, and the country that fails to provide its army with necessities shall perish. This fact has at last begun to be realized in America, but we are almost criminally slow in recognizing the fact that the trained doctor—the doctor trained along military lines—is a necessity. Some of you even yet fail to understand that unless we give our doctors military training we will certainly lose this war.

Fortunately for my argument, I have facts to present that will prevent you from laughing at this statement and utterly repudiating the proposition which, prior to 1914, I so many times advanced with humiliating consequences. The *British Medical Journal*, quoting figures of the French Statistical Bureau (M. Bertillon in charge), and from such German sources of information as were obtainable, states that in August, 1914, the Germans were sending back to the firing line about 90 per cent of the wounded that reached hospitals. Now, if salvage of the wounded is a purely medical proposition, the French, English and American doctors should have been returning to the firing line about 90 $\frac{2}{3}$  per cent of their wounded, because you will agree with me that English, French and American doctors are vastly better surgeons than are the German surgeons. I cannot tell you what the Ally statistics on this subject were in August, 1914, but in November of that year, when railroads were built to connect the firing lines with all the hospitals in France and England, when America had sent its Criles, Brewers and Hartes to give them aid, and when every condition conspired to give the doctor his opportunity to make a brilliant record, the French and English returned to their front only 23 per cent of those who had reached their hospitals. In April, 1915, this figure had jumped to 65 per cent, and it has been only within a short period that our Allies have nearly approached the excellent record that has given Germany a very decided advantage expressed in terms of companies, battalions and divisions.

We can, therefore, count ignorance of the fact that a military surgeon must be a soldier, as our first great liability; but, on the opposite side of the ledger, you can enter Camp Greenleaf as an asset to military medicine, which makes the balance no longer

formidable. At this camp the knowledge has taken root that even the ward surgeon in a base hospital must receive a military training; that, unless the least military of our organizations are manned by soldiers, we shall fail to get the team-work that results in efficiency. To paraphrase Lincoln's famous epigram, "You cannot have an army half military and half civilian," and my message to all of you is that to serve in any capacity in the army at 100 per cent efficiency you must have military training.

The second liability of the medical profession has been expressed in terms of personal losses and the disruption of medical schools. The former we can dismiss in a few words. We are all in the market to buy happiness—physical happiness, which is short-lived and largely imaginary after the bread-line has been passed; and contentment, which comes of knowledge of duty well done, which is real and permanent. Like any other commodity, happiness must be paid for to be appreciated. The boy who works and saves his pennies gets more happiness out of his Ingersoll than the rich boy gets out of his \$100 gold watch; and for the same reason what you get out of this war will be exactly what you put into it. It is a glorious chance to make a good bargain, to purchase happiness cheaply, and I hope every doctor in America will be pinched with sacrifices, and more sacrifices, until he has laid up treasures that all of the gold of Cræsus could not buy. The liabilities in this war will rest only with that rare bird of our profession who seeks in this hour to feather his nest. "What profiteth a man to gain the whole world if he loseth his own soul?" The medical pirate will not only lose his own soul, his only chance for everlasting happiness, but he will lose the world as well; for, with all the assurance of positive conviction, I tell you that the men who sacrifice self in this war shall be the owners of the earth and all that it contains.

The disruption of medical schools, at first sight, looks serious, but the legislation now in force will preserve the output that will be necessary to supply wastage in the army if the war continues for several years. Temporarily the civilian population will not be served as well as in times of peace, but this will be more than compensated for by the fact that if this war lasts long enough the medical profession will be of so much higher quality that the temporary hardships will soon be forgotten.

#### OUR ASSETS IN THIS WAR.

This brings us to the end of our recital of liabilities, which are in fact simply assets in disguise. Of our apparent assets we have

too long a list to mention them all, but we can emphasize first the fact that our profession is the great volunteer profession of America. It was the first to have a Reserve Corps, it filled up this Reserve Corps without the pressure of the draft, and it is the most efficient part of the United States Army. It promises to remain the most efficient. With less to gain, with more to lose, with less thought of self and with more regard for duty than any other profession, this profession of ours has heard the call and it has responded. Is this our asset for the profession? I should say that for all time we have gained happiness and honor.

The second great visible asset is the good, just referred to, that will come to all who serve. I mean the professional advancement. You do not yet realize that the Army Medical Service is a vast training school, where opportunity to become skilled in medicine knocks at the door of every doctor. To many young men this is the only chance they have ever had; to all others it is the best chance they have ever had to learn their art. While this is true in every part of the army, it is chiefly true of Camp Greenleaf, where not only military art, but medical art as well, claims the best efforts of the best teachers the country can afford. I refer to the Camp Greenleaf schools.

It was my good fortune to start these schools at the camp—schools of hygiene, internal medicine, surgery, orthopedics, laboratory and X-ray schools—and it has been a revelation to me to see what can be accomplished under intensive study conditions now in operation. What the future of these schools shall be is now in other hands, but it is safe to say that the plan shall not fail, and all of us must use our best efforts to see that such a force for good shall receive our backing and our most loyal support. The plan contemplates a great medical university at Camp Greenleaf—a unique institution that shall serve during and after the war to give the best post-graduate courses the world has ever known to an unlimited number of our profession. Is this an asset? The most confirmed pessimist must shout for joy when these facts become known.

But all of these assets are but minor matters compared to the great idea which is the logical sequence of all of these happenings. Need I show you the goal toward which we tend?

Let us approach the idea from another angle: The medical profession is the most learned of all professions, and yet in the councils of the nation it has no force—nay, it has barely a hearing. Labor is

presumably the least learned of all classes, and yet it has a cabinet minister and is the mightiest force of the nation—yes, even more mighty than capital.

Why this difference? The answer is not that labor combines criminally to force its wishes upon the rest of the world, while medicine, in altruistic lethargy, is willing to let others work their will. The true answer is that labor is exercising the sovereignty vested in it when we abolished thrones from our midst, while medicine has shirked its obligations and has allowed its sovereignty to go by default. A doctor once said to me that he deemed it a strange thing that a cabinet minister existed to see that hogs did not catch cholera, while the diseases of mankind were handled by a subordinate bureau. I asked him if he had voted at the last election, if he belonged to the A. M. A., if he was an advocate of a National Board of Medical Examiners, and to each question he answered "No." I told him to go his way and to marvel not henceforth.

In a democracy, sovereignty is vested in the individual. Each individual, according to his brains and his personality, is the center of a sphere of influence. The sphere is large when the individual, by study and industry, makes it large, and it is small when he is ignorant and non-social. As the government supplies education, it likewise demands service in return. Each educated man, therefore, has an added responsibility thrust upon him to maintain—i. e., he not only has his individual obligation to exercise sovereignty, but also he assumes an obligation to exercise an influence upon others in their individual exercise of sovereign rights. In other words, sovereignty is vested in every man, but democracy depends upon the educated man to guide those who look to him for precept and example.

With groups, as with individuals, democracy likewise demands the assumption of sovereign acts. Groups are collections of specialized individuals, and thus it is that unless medicine unites to demand statutes that it in its wisdom deems necessary for the public good it is in the position of a cabinet minister that sits silent and draws his pay without rendering a *quid pro quo*. Democracy in America will be a farce unless the profession of medicine and all other classes unite, as labor has rightly and democratically done, in the exercise of their sovereignty. In a democracy, the guardian of the public health is the medical profession, and if the medical profession has no representative to speak for it, or if it does not speak for itself, it is but right and proper that special laws relating to the public health, and even to the profession itself, should be made by

other classes who have exercised their sovereignty and have earned the right to speak for those that have not.

If all classes did as medicine has done, democracy would be dead and imperialism would triumph. If all do as labor has done, democracy will triumph, and all kings will perish from the face of the earth.

We can now answer our question and cry aloud that, actuated by the sight of the horrible crimes of imperialism, united in service as we could never before unite upon any common ground, we, the profession of medicine in America, have found ourselves, have found a new meaning in the word LIBERTY, are at last about to take up our sovereign rights to serve America and humanity.

Gentlemen, I believe that the big asset of this war is that medicine shall unite, and thus convert its potentiality for good into a reality, and I believe it is through the Medical Reserve Corps and the Volunteer Service Corps that this shall be accomplished. Our motto will be "I serve," and, as our opportunity to serve is infinite, so will our results be infinite. Being the greatest learned profession, we ought to have the greatest influence in America. Being the great humane profession, this influence should be the best influence in America. I ask you to take these ideas home with you and ponder deeply upon them. If we earnestly desire to do this great work we must make the Regular Medical Corps, the Reserve Corps and the profession at large one and the same thing. All who are eligible must join the Reserve and place themselves in the hands of the Medical Department; and this medical profession, united on the one common ground of "service," will then enjoy its birthright.

Optimist that I am, I therefore see no liabilities. Assets we have in plenty, and let us see to it that we shall not hide our talents in a napkin.

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## MEDICAL RESERVE CORPS AND MEDICAL MILITARY ACTIVITIES.\*

By MAJOR FRANK SIMPSON, M. R. C.,  
Chief Medical Section, Council of National Defense, Washington, D. C.

*Mr. President, Ladies and Gentlemen:*

My message is brief. I call upon all who hear it to carry it to the remotest corner of this State. At present Louisiana has contributed liberally to the service of the nation in its medical activity. Existing conditions require that in the next few weeks this State

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must make another liberal contribution—about 175 medical officers to the army and about twenty-five to the navy.

You have followed current events with the keenest of interest. You know of the shameless deception of the Germans in trying to destroy the morale of the Italian Army. You know of the repeated rumors of peace, designed for the purpose of preventing the speedy transformation of this nation, and especially of its industries, from a peace to a war footing. You know of the rumors of dissension in the German Army, of mutiny in her navy, of starvation riots and of dissension among her people, all circulated for the express purpose of causing us to underestimate the strength of the enemy. The lie has been given to those rumors by the hordes of Huns that have been thrown against the Western front. You have seen the masterful effort that is being made by our war-weary Allies; you have heard and have not doubted the words of Premier Lloyd George, of England. It is impossible to exaggerate the importance of getting reinforcements from across the Atlantic in the shortest possible space of time. Your hearts have been gladdened by the statement that the President himself gave orders to the effect that all else must be subordinated to the one task of getting American soldiers to France. With bated breath we are now watching the wavering lines in France. Your hearts are filled with admiration and with gratitude for those brave men who for four years have checked the mad onrush of the Huns; but many of us have not realized our full significance or individual responsibility in this crisis until the terrible drive now in progress forced from the lips of Sir Douglas Haig that tragic appeal:

“Words fail me to express the admiration which I feel for the splendid assistance offered by all countries to our army in the midst of these trying circumstances. Many of us now are tired after four years. To those I would say that victory will belong to the side which holds out the longest. The French Army is moving rapidly and in great force to our support. Again, with our backs to the wall and believing in the justice of our cause, each one of us must fight to the end. The safety of our homes and the freedom of mankind depend alike upon the conduct of each one of us at this critical moment.”

What does that mean to the medical profession of Louisiana? It means that if you do your part in this terrible crisis your State will in the next few weeks send 200 additional officers

to the army and to the navy of the nation—175 to the army and twenty-five to the navy. You naturally ask, what is to be done with so many doctors? You recall that a few months ago, before a committee of the Senate, the Secretary of War made the statement that before the close of this year 1,500,000 would be in Europe. Prudence of the most primitive type dictates that in this crisis for every soldier that is sent to the front at least one, certainly two, probably three or more men must enter training if we are to have adequate protection for this nation. Who among you can bring himself to believe that this great nation, in the greatest struggle of the world's history, could be so short-sighted as to make such meager protection? and yet that means, if we replace one soldier by a new recruit, three million under arms before the first of next January. The lowest possible estimate of medical men requires 7,000 doctors to a million of men, so that it would mean 21,000 doctors for our army. Of the 22,000 who have volunteered, there are available to-day approximately 18,000, net deficit of 3,000 existing at this time. But that is not all. Our Allies need medical officers. We must come to their support. That is not all. In order to be sure that we may find the right man for all emergencies, and put him in the right place at the right time, it is essential that the Surgeon General should have a good margin, a good surplus, from which to select those men. It is just as necessary for the Medical Department of an army to have a reserve surplus as it is for a bank to have a surplus of dollars. You all know what would happen to the banks of New Orleans if at the close of business to-morrow the cash reserve were perilously low or if the vaults were empty. The Surgeon General's vaults of precious men must never be empty. The Surgeon General has called for 5,000 men to meet immediate needs. It is clear to men of vision that, before the close of this year, we must have at least 10,000 more doctors. The navy to-day needs 1,000. Your task is, therefore, to help us raise that number within the next few months. So you see, you have a real task, one that is to tax your ingenuity—the strength of not one member of the medical profession, not of two members, but of all loyal, patriotic men, and to that kind of men I know I am now speaking.

In closing, I would ask that each one of you take this brief message to heart, always remembering that when in the future your wives, your children, your friends, your neighbors, your patients ask what part you have played in this great crisis of the world, the

accusing conscience will always place the burden of responsibility upon the man who stays at home. I feel very sure that this State will do what it has always done—meet its full responsibility, and that within a brief period we shall have the full quota from Louisiana. (Applause.)

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## THE BASS-WATKINS AGGLUTINATION TEST FOR TYPHOID.\*

By FOSTER M. JOHNS, M. D.,

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In an article entitled "A Quick Macroscopic Typhoid Agglutination Test," by Drs. C. C. Bass and John A. Watkins, in the *Archives of Internal Medicine* for September, 1910, an agglutination test for typhoid was brought forward as a practical method of securing the information furnished by the classical Widal reaction, a test that requires a knowledge and the equipment of a laboratory.

This reaction was simply a development of the observation that, within certain wide limits, the more concentrated the suspension of bacteria, the more rapidly agglutination takes place in the presence of a given amount of agglutinin. In the finished test not only was the time factor greatly reduced, but with the heavy suspensions of bacteria used the resulting agglutination was rendered easily visible to the naked eye, which at once obviated the microscope and considerably improved upon the more or less dilute contemporaneous macroscopic tests then in use, which, in addition, required many hours in their performance.

In the eight years that have elapsed since the publication of this article this reaction has constantly grown in favor among the clinicians of the South, in spite of many improper lots of reagent supplied by private laboratories, my own included, as well as the various biological houses. During this time the test has been in constant use in the laboratories of clinical medicine with which I am connected, and it is with the belief that this reaction offers an easier, quicker and even more accurate reaction to not only the clinicians, but the trained laboratory worker as well, that I have prepared this discussion of a now well-known test. During this

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time the few faults in technic and production brought out by continual use have been met and overcome, with the exception of a technic that will insure the uniform production of a stock suspension of typhoid bacilli that will keep well under the ordinary conditions of usage. With the aid and coöperation of Dr. Bass, I have been able to evolve a formula that has answered every requirement for over a year, and I will take this opportunity to briefly outline the reason and manner of the change in method of preparing the stock Bass-Watkins suspension.

As described in detail in the original article, the technic is designed to meet the exact requirements of the classical Widal in a serum dilution of 1 to 100, with the exception that the organisms are definitely spaced to where they are immediately sensitive to the collective forces of surface tension, when these are initiated by the addition of the agglutinating serum instead of depending on the many varied factors of motility, reaction, strain and concentration of the broth culture in the classical test.

That the reaction is founded on correct principles and, when properly performed, will check to the last detail with the classical test when it is properly performed, is a definitely established fact and needs no further attention here, beyond the statement that in student and private work in our laboratories are the records of now many thousands of parallel reactions using both the Bass-Watkins and the original Widal methods.

The material required in the test are a few microscope slides, blood sticker, medicine dropper, toothpick and a stock of suspension of typhoid bacilli, this latter consisting of 10,000 million typhoid bacilli per c. c. in 1.7 per cent salt solution and preserved with 1 per cent formalin.

In making the reaction we add one drop of water to a smear consisting of one-quarter drop of blood; dissolve the blood by stirring with a match or toothpick. Add one drop of Bass-Watkins suspension and then gently agitate the slide for one minute, watching for the appearance of a meal-like sediment of agglutinated organisms in the positive reaction. In the case of a negative reaction the suspension on the slide remains uniformly turbid.

As simple as the technic sounds, there is often considerable difficulty in doing a simple thing. Taking up the test step by step, I will endeavor to point out the places where error may creep in. To begin with, an absolutely clean slide, freshly washed with soap and water to remove the grease and dust, must be used. Now, we

require one-quarter of a drop of blood on the center of the slide. This is a quantity almost impossible to describe to one not accustomed to the routine making of proper blood smears, but practically it is easily approximated. Squeeze a quantity of blood out of a puncture on the finger or ear lobe that will not quite drop off, and then barely touch the slide to it. The quantity adhering to the slide will vary from one-quarter up to one-half of one drop. In either instance, for practical purposes, the end result will not be influenced, as it is commonly estimated that in the presence of the usual positive Widal there are several hundred more units of agglutinin present than is needed in the actual agglutination of the organisms. The actual dilution of the organisms will not be disturbed by either of the quantities of blood, as the blood is then spread roughly over the middle third of the slide and allowed to dry.

Now, one drop of plain water is added. Drops can vary enormously in size, and while, if the proportions in the test were carried out to suit, no harm would ensue, still, for working purposes, we need a full-sized drop. In this instance the standard drop is measured by preferably using the ordinary medicine dropper held almost parallel to the table, so that the drop collects on the side of the elongated glass tip of the dropper.

In dissolving the blood the water should be carefully spread, taking care not to scrape up the blood-cell stroma that will adhere to the slide if the specimen is over a few hours old.

Now, shake the bottle of suspension well and add one full-size drop of suspension to the diluted blood. The slide is now slowly tilted (so as not to break up the clumps as they form) backward and forward and from side to side for a few seconds to thoroughly mix the suspension and water on the slide, and then is viewed by indirect light—*i. e.*, toward the window, with the window sill or crown as the background. Continue rocking the slide and observe the gradual formation of the small white granules of agglutinated bacilli as they now begin to form. The earliest agglutination is seen around the edge of the dilution, and are seen best as they are gathered up on an advancing wave as the angle of the slide is varied. Agglutination is always complete in one minute, and no attention should be paid to the formation of clumps after drying of the edges has begun, as this is simple conglomeration and not specific agglutination. Varying degrees of agglutination will be noted—depending on the concentration of agglutinin in the blood of the patient. The formation and collection of these protective substances in the

blood only begins with the onset of symptoms in the patient—and is only present in demonstrable quantities in the usual case by the end of the second week. A negative reaction counts for very little early in the case, but gradually assumes importance as the days pass. Weakly positive (or doubtful negative) reactions should be repeated from day to day. A positive reaction must be interpreted in the light of the present symptoms, discounting the history of antityphoid vaccination or previous typhoid. The agglutinins are usually lost several months after an attack of typhoid (or vaccination), but may persist in a few individuals for many years.

Make it a fixed rule to make a known negative control reaction at the time each test is made. This is a requisite in all laboratory reactions, and is the only way an error in technic or suspension can be kept constantly checked up.

As mentioned previously, in the past we have occasionally noted a variation in the keeping quality of the suspension prepared as closely to the original formula as possible. Many of the suspensions on the market, as prepared by the various biological houses, were found to have deteriorated. Some vials react perfectly, after now eight years of preservation, while other would not keep more than several weeks. All of the suspensions made up in our laboratory, when not reacting properly, always gave the error on the positive side of the reaction. In other words, non-specific positive agglutination. It has long been known that suspensions of bacteria would be agglutinated by acids or alkalis, and that this action was exerted in varying degree on different strains of the same variety of organisms. Indeed, strains of typhoid bacilli may be found, or even produced, that do not yield specific agglutinations as well as others, such as the famous Russell strain for vaccine use, that agglutinates to a considerable extent non-specifically with the sera of many normal individuals.

After considerable experimentation, which embraced the organism, culture media, diluent and preservative, I have found that a suspension that is made up practically neutral in reaction will keep perfectly. This includes the elimination of the sodium chloride, which becomes dissociated in solution, and even though present in minute quantities, exerts a deleterious effect on some strains of organisms when acting over a long period of time.

Briefly, a fairly recent strain of *B. typhosus* suitable for Widal purposes, and that gives a good heavy growth, is selected. This is

inoculated by broth cultures on to Roux flasks containing a surface of ordinary laboratory agar-agar, with the sole requirement that it be fairly dry. After several minutes the broth is poured off, the flasks inverted and incubated for forty-eight to seventy-two hours at 37° C. The organisms are then washed off with a minimum of 1 per cent formalin (Merck) in water.

The washings containing the organisms are then poured through a thin layer of cotton to separate any coarse sediment, and are then placed in large, wide jars, not over six inches deep. (Small quantities may be centrifuged.) In about a week the organisms have settled to a layer approximately one inch deep—the supernatant fluid is then carefully decanted, the bacterial sediment counted, and made up of 10,000 million per c. c. with 1 per cent formalin.

This amounts to the preparation of washed typhoid bacilli in 1 per cent formalin. The absence of the salt in no way has interfered with the proper reacting of the organisms, whereas 17 per cent sodium chloride will cause the iso-agglutination of many strains of typhoid bacilli.

#### DISCUSSION ON THE PAPER OF DR. JOHNS.

**Dr. C. W. Duval**, New Orleans: One great advantage I have seen in the agglutination reaction for typhoid is that they use killed cultures. This prevents any possible chance of the operator or the physician who is using the test from getting the typhoid organism. In the old or original test, which was both macroscopic and microscopic, living typhoid organisms were used. I think the dead organism which we are now making and using is quite as well as the living organism and has a decided advantage because of that fact. There is no possible chance of contaminating one's self with the organism.

I would like to ask Dr. Johns if he has tried using tricresol or some carbolic preparations for the keeping of the stock or dead organisms which become contaminated with other organisms? I should think tricresol, 1 per cent, might keep down contamination and at the same time not interfere with the antigenic or agglutinating property of the dead typhoid organism.

**Dr. R. B. Wallace**, Alexandria: I have been using this test since it was first brought out. It has appealed to me on account of its practicality and simplicity. It can be carried to the patient's bedside. It is a very small, little box, and contains a complete equipment, and for that reason I think it is meritorious, in addition to its tallying practically with the original Widal. I want to bring that little point out as one reason why any physician who has learned how to use it can put it into active practice.

**Dr. O. O. Hamner**, Bienville: I wish to thank Dr. Johns for his paper on this subject. Like Dr. Wallace, I have been using this test since it was first gotten out by Dr. Bass. Dr. Bass sent me specimens of his

solution, and I have used it many times, and it is a great help in diagnosing cases of typhoid fever.

I wish to express my thanks, and believe it is a very simple and practical method by which we can get at the true nature of the disease.

**Dr. Frank H. Walke, Shreveport:** I would like to ask Dr. Johns what part the paratyphoid stain played in this particular test? I might say, in listening to Dr. Johns' paper, the test has appealed to me on account of its simplicity, and also on account of the fact there is much less of the culture of typhoid on hand, transferring the live cultures, and the method appeals to me very much. I would like to know, however, what part the paratyphoid stain has played in this particular test.

**Dr. Foster M. Johns, New Orleans (closing):** In line with what Dr. Duval has said, I will say that six or eight months ago a ruling came out from the War Department requesting each laboratory to keep cultures under lock and key. The demand for the Bass-Watkins test has been so great that the laboratories have been swamped to fill the orders. We have not been able to keep up the cultures. The test fills a want during war-time.

As regards tricresol as a preservative, we have not tried it, for the simple reason that formalin has answered all purposes, and, as the blood is kept in this bottle and allowed to stay, it can be kept perfectly for any length of time. It is a question of how well the bottle is stoppered and how to keep from contaminating the growth. If the stopper is left out, there is evaporation, and the contamination destroys and autolyses the organism.

We have not tried tricresol. It is much better in vaccine work than anything else, and possibly it would be worth while.

I think Dr. Hamner has the right idea, only I believe in the last few years the Widal or any of the agglutination tests are simply confirmatory reactions—they are not diagnostic. Typhoid fever should be diagnosed within the first three or four days with a blood count. That is scientific medicine, and we can practice scientific medicine. The next thing is to rule out malaria with a low leukocyte count and call it typhoid fever. Along about the third week you get anxious and want a confirmatory test, and that is the time when the Widal or the Bass-Watkins test can be used.

As regards paratyphoid cultures, they constitute organisms whose pathogenicity varies from the typhoid bacilli on down to an enteritis or organisms of the colon group. We isolate and keep on tap two different strains—one paratyphoid A and another paratyphoid B—and the agglutination is specific for paratyphoid A and B types. My experience with paratyphoid is that it constitutes less than 3 or 4 per cent of the cases, and for practical purposes I keep a suspension of paratyphoid A and paratyphoid B for my own use, so that we rule out typhoid, and that is sufficient.

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## TREATMENT OF ECLAMPSIA.\*

By HILLIARD E. MILLER, M. D., New Orleans, La.

There have been few problems in the medical category which have caused as much speculation and been the stimulus for a more earnest campaign of research than the toxemias of pregnancy, or the so-called preëclamptic state. Yet, from the time of Hippocrates, all of the theorizing, laboratory and experimental data have amounted to practically *nil*, so far as elucidating the underlying factors of causation or furnishing any clue as to what would be the most promising method of treatment to be adopted.

As a result of confusing and conflicting statistical reports from the various large maternity hospitals, there has naturally been a division of thought among members of the profession, which division has evolved two opposing factions, namely: the advocates of radical treatment and those who still claim good results from palliative measures. The advocates of each method have waged a campaign pro and con, with no other results than that at the cessation of hostilities each one was still impassioned with his own prejudiced ideas and unable to see any reason why they should be different.

One will see from the beginning that he must ally himself either with the radicals or conservatives, for there can be no individualization of cases, nor is there any particular feature in a given case which will designate whether the uterus is to be hurriedly emptied or whether one can afford to procrastinate with symptomatic treatment and allow nature to free the mother of this vicious poison.

Whatever method we choose, it must be directed toward conserving the vitality of the mother in eliminating, as far as possible, the development of shock. The child should not incur a great deal of consideration, as many of them are as much as a month or month and a half premature, and live only a few hours after delivery. Some die during the initial convulsion, while only a few survive the storm, and a large percentage of them succumb during the first few days as a result of trauma sustained through the method of delivery, or from remote effects of the profound toxemia.

The essential factor, and the one which offers the most effective means of dealing with this dreaded condition, is the early recognition and proper interpretation of the initial symptoms and the institution of a vigorous treatment to abort the dire consequences which

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result through neglect. The fully developed case of eclampsia is either due to gross negligence or ignorance on the part of the attending obstetrician, or else a failure of the patient to appreciate the significance of signs and symptoms which her doctor has warned her of as portending trouble.

The history of all præeclamptics is essentially the same, namely: headaches, spots before the eyes, epigastric pain, muscular twitchings, occasional slight mental unbalance, dizziness, ringing in the ears, etc., also a rise in blood pressure from 140 to 250 m. m., finding of albumen and hyaline and granular casts, low urea percentage and diminished output. These prodromata may be present from a few days to four or five weeks before the actual occurrence of convulsions, and all serve to point to a kidney or liver involvement of varying intensity. Of all the signs of impending trouble, the blood pressure recordings are probably the most reliable and constant, for many cases develop convulsions where the urinary findings have been repeatedly negative even for a few hours prior to onset of attack.

These symptoms should be seriously heeded, and at once a vigorous eliminative treatment instituted as a prophylaxis. This, however, is only empyric, since we do not know the real causal factors; yet in a large percentage of cases the symptoms subside and the patient goes to full term without a great deal of discomfort.

The object of the eliminative treatment is to relieve as far as possible the extra burden thrown on the kidneys, and consists of hot packs every twelve hours, colon irrigations, three to four gallons of a 2 per cent sodium bicarbonate and glucose solution every eight hours. The diet should be limited to milk entirely, two to four quarts daily.

If the patient is restless and irritable, morphia, gr.  $\frac{1}{4}$ , to be repeated as often as is necessary, or chloral, gr. 30, sodium bromide, gr. 40, by bowel, will usually quiet the patient and procure a few hours' restful sleep.

The old practice of bleeding to lower blood pressure is, I believe, a pernicious one, and should be practiced only in cases developing postpartum convulsions. A few minutes after a sufficient quantity of blood is withdrawn to lower the blood pressure appreciably, conditions may arise necessitating a rapid emptying of the uterus, with a consequent loss of a great deal of blood; the two combined may be quite enough to precipitate a pronounced state of shock or immediate death.

If the eliminative form of treatment is to be effective, improvement will manifest itself within the first forty-eight or seventy-two hours by an abatement in symptoms, rise in urea percentage, lowering of blood pressure, etc.

Should these symptoms persist over a period of four or five days, however, we have trusted the palliative measures as far as we should dare, and immediate measures should be made to evacuate the uterus as rapidly as possible.

Many authorities, however, continue to treat the patient symptomatically, even after convulsions appear, attempting to abate and lessen the immediate and remote effects of the convulsive seizures with large doses of morphia. The morphia, to be effective, must be given in very large and oft-repeated doses—enough, according to its advocates, to bring the respirations down to eight or ten per minute. This, to my mind, is not only adding an extra toxin, but borders on to fatal morphin poisoning.

We know only one thing certain about eclampsia, and that is that only the products of conception are capable of producing such a state of toxemia, hence it would seem logical to remove this cause by the quickest possible route as soon as conditions arise which place the mother's life in jeopardy. The mode of rapid delivery, however, depends on several conditions—first, the period of pregnancy; second, the state of the cervix; third, complications, as contracted pelvis, placenta previa, etc.

As to the first mentioned, if the convulsions appear before viability of the child is established, it is only necessary to procure sufficient dilatation of cervix to do craniotomy and extraction.

If the cervix is fully dilated, and the head is engaged, apply forceps and deliver. If the head is still floating above the brim, version and breech extraction is the best maneuver. If the cervix is only partially effaced, manual dilatation with fingers or Dührssen's incisions, followed by forceps delivery or version, depending on conditions aforementioned.

If the cervix is large and hard, with no dilation, and the pelvis is of such dimensions as to allow of delivery, vaginal Cesarean section is best. If there should be a contracted pelvis, or a placenta previa complicating the picture, abdominal Cesarean section is the method of choice.

Fortunately, with the onset of convulsions, labor usually begins, and in a small percentage of cases the severe convulsive seizures rapidly dilate and efface the cervix and effect a precipitate labor.

Ether is to be the choice of an anesthetic, but as little as is possible is to be given.

The post-partial care of these patients demands as much consideration as any stage of the treatment, as it is not uncommon for them to be so saturated with the offending toxin as to develop eclampsia after the uterus is emptied. Hence, the same drastic eliminative methods outlined before should be carried out until the symptoms subside, blood pressure drops and urine is negative for albumen.

It is the duty also of the obstetrician to ascertain subsequently the amount of damage done to the kidneys and to advise strongly against any future pregnancy in case a true state of chronic nephritis exists.

#### DISCUSSION ON THE PAPER OF DR. MILLER.

**Dr. T. B. Sellers, New Orleans:** I have listened to the careful and instructive paper on eclampsia, which is a subject of vital importance to every practitioner. The point we are most interested in is prevention.

I had the privilege three years ago of serving on Dr. Allan Eustis' staff, who is a strong believer in not only testing the urine for albumen and sugar, but also for indican and urobilinogen. I feel that if you find indican and urobilinogen, as he stated yesterday in his paper, in the urine, it is an index that the liver is not functioning. We know that the primary cause of eclampsia is a central necrosis of the liver, and the albuminuria is only a secondary manifestation late in the development of the disease. If this is true, and it is needless to say that I believe in it, thanks to Dr. Eustis for impressing this on me, we have to solve the great problem in preventing eclampsia. In my limited experience we cannot foretell the outcome of eclampsia, and it is well to put these cases on a strict carbohydrate diet, forced liquids, purgation, and so on. In many of these cases the eclampsia comes on like a bolt out of a clear sky, with convulsion as a first instance. Another class of cases are those that come on with albuminuria several days ahead. You test the urine and find albuminuria. Those cases you put on a carbohydrate diet. In those cases that come to us like a bolt out of a clear sky, if we can obviate the development of the convulsions it is a point worthy of consideration.

As to the mode of delivery, I feel that depends a great deal upon the locality. If you are in the country, Cesarean section is almost impossible. If you are in a city, where you have the advantage of hospitals and nurses, no doubt the surgeon prefers to do Cesarean section, the vaginal route being preferable in cases where the pelvic measurements will permit; but you have another class of cases in the country in which it is almost impossible to do anything but delivery in the natural way. In those cases where you are handicapped, obstetricians throughout the East, most of them, are heartily in favor of large doses of morphia and of resorting to conservative treatment almost exclusively. While I was in the East I found most of them recommending conservative treatment. When a case began to do badly, they took the woman and delivered her and used morphia in combination.

Another point is this: There are a large number of cases of eclampsia that come into the hospitals just after a large meal, and the thing we do not want to forget is to eliminate the meal from the stomach as quickly as possible and get in our diuretics and purgation and so on.

**Dr. P. B. Salatch**, New Orleans: Eclampsia can come on as early as the third month (Zweifel), but it is generally met with during the second half of pregnancy, and most frequently nearer the end. It occurs about once in one hundred pregnancies. It occurs about 55 per cent during the later months of pregnancy, 30 per cent during labor and least frequently after delivery, about 15 per cent.

Convulsions may come on without symptoms, but usually the following symptoms are noted: vertigo, persistent headache, precordial distress, epigastric pains, disturbed vision or total blindness; sometimes only spots before the eyes, and general edema.

Systematic examination of the urine not only for albumin and casts, but also for urea, and the amount of urine passed in twenty-four hours, and the total amount of urea. This is more important than casts or albumin, for they may be present or absent. High blood pressure persisting, should always be regarded as a dangerous sign.

The treatment may be considered under three heads: 1, Prophylactic; 2, medicinal, and (3) surgical.

1. Prophylactic.—The preventive measures during pregnancy are of paramount importance. Strict attention must be given to the various hygienic measures, such as the free use of water. Every pregnant woman should be watched by a physician or, if unable, at a hospital dispensary. They should bathe regularly in tepid water. Regular exercise in the open air, preferably walking and riding. The diet should be principally fruit and vegetables, with restriction of the nitrogenous food, especially during the later months. Take especially milk if albumin appears in the urine. Laxative mineral water should be taken to keep the bowels regulated. Be sure to make the total estimation of urea in a twenty-four-hour specimen. Alkaline drinks, such as sodium bicarbonate in hyperacidity, are very beneficial.

2.—Medicinal.—Large amounts of water and the intravenous injection of normal saline are highly recommended. Venesection and the introduction of saline into the skin can be used not only in the plethoric, but also in weak patients. The salt solution is quickly absorbed and takes the place of the blood removed. If venesection is performed before the child is delivered the saline should be introduced simultaneously, or the slowing of the circulation of the uterine sinuses will kill the fetus. When the convulsions come on, calomel in two or three-grain doses or two minims of croton oil in half-ounce olive oil should be given. High enema, consisting of glycerin one-half ounce, Epsom salts three ounces to six ounces, saline. When the bowels are opened give forty grains of sodii bromide and fifteen grains chloral hydrate in six ounces of saline by rectum. The bromide without the chloral may be repeated in three hours. Hot pack should be prescribed for twenty minutes; ice cap to the head and water by mouth freely during pack, if patient can swallow, otherwise Murphy drip of saline. Fifteen minims of Norwood's tincture of veratrum viride by hypo should be given, and repeated every hour in decreasing doses until the blood pressure and pulse fall. Morphine, one-third grain, should be given at the onset of the convulsion, and repeated in one hour if the convulsions continue.

3. Surgical.—When the above measures have been used and failed, and the convulsions continue to recur at more frequent intervals, the uterus

should be emptied. This can be done in several ways. If the case is not urgent or surgical means not possible, the introduction of a rubber catheter into the uterus and packing the cervical and vaginal canals are indicated. A hydrostatic bag can be introduced into the uterus and cervix dilated with water. This is a quicker means than the catheter. The cervix will generally have to be dilated before. The cervix is soft and yields, as a rule. If the blood pressure is high, rupturing the membrane often relieves it, and the case can continue on. If the cervix is rigid or unyielding, as in primipara—and five out of six eclampsias occur in primipara—then we resort to multiple incisions in the cervix or do vaginal hysterotomy. Williams prefers vaginal hysterotomy where there is no disproportion or pelvic contractions. In an institution, abdominal Cesarean section is the least injurious, especially in a primipara. I always prefer it, for I do not know of anything in surgery that is harder than a vaginal Cesarean section and high forceps in a primipara. After delivery the course outlined under the medicinal treatment should be followed if convulsions continue. Basham's mixture, 5i to 5iv, to clear up the remaining kidney involvement, acts very well.

**Dr. J. A. Hendrick, Shreveport:** We must use local anesthesia in these conditions. I have had cases that have done beautifully under local anesthesia. I find that under ether anesthesia you have a greater increase of toxemia than from local anesthesia. In these cases I am in favor of abdominal Cesarean section instead of vaginal Cesarean section on account of traumatism.

**Dr. I. J. Newton, Monroe:** I do not care to discuss but one phase of this most excellent paper, and that is, after the obstetrician has reached that stage of attendance upon the case where he feels that immediate emptying of the uterus is necessary, his judgment should obtain, and I would advocate abdominal Cesarean section as preferable to all other methods of emptying the uterus, when necessary, after the eliminative and dietetic and other measures have ceased to be of avail. The Cesarean operation is more spectacular and difficult and dangerous. It can be performed in from twenty to thirty minutes, and, on account of its surroundings, is easier for the physician who is handicapped by want of hospital or other facilities, and it is more cleanly to enter the abdomen than to resort to manipulations through the vagina. I have had quite an extensive experience in these cases in my town, and it is the experience of myself and that of others that the abdominal Cesarean section is by far the better plan for emptying the uterus under such conditions. I do not think I am making any mistake in advocating the complete removal of the contents of the uterus by abdominal Cesarean section.

**Dr. S. M. D. Clark, New Orleans:** I do not know of any subject that is prone to bring out a more liberal discussion than eclampsia, except it be quinin in malarial hematuria; therefore, in this particular subject, I want to touch on two or three more points. First, the importance of prophylaxis. There is no denying the fact that the obstetrical woman is not getting a square deal. You know, and I know, that the only time in many of your cases that you see your patient is when a fellow comes in town, starts to do some shopping, drops into your office and says, "Doctor, I may need you next week or a few weeks afterwards." You know absolutely nothing about the woman's pelvis; you do not know the position of the child or anything about her blood pressure or elimination. To me, that condition has to be changed in time. I think the obstetrical woman is an extremely lucky individual, judging from the results of the

usual methods and according to the treatment they get. Why is that? I believe it is because the good, conscientious man who wants to protect his wife is not properly educated. He does not know the dangers of obstetrical procedures. He does not know the many pitfalls. He has been raised in accordance with the idea of the old school that the midwife will do, and he feels that the routine fee of \$15 or \$25 is all that it is worth to have his wife delivered, and really I believe in many instances that is all it is worth, judging from the amount of time given to his wife. If such a man were acquainted with the hazards and the dangers of this obvious procedure he would only be too willing for his wife to receive proper treatment.

There is a great field for propaganda in a community in this regard. I feel very forcibly that if any fellow will go into a community and take a group of these people and tell them that he is prepared to do that kind of work and is going to charge more for it and is going to give these women a square deal and look after them properly the people or husbands will be only too glad to pay the extra fee. The way to avoid eclampsia is to keep hands off the patient and watch her during the entire time, and, so far as possible, educate the people not to look upon present-day obstetrics as a physiological process, but as a pathological process.

The second point I want to mention is with reference to vaginal Cesarean section. I hear men speak of it lightly. I believe, with Dr. Salatic, absolutely that it is a very difficult procedure in certain cases. Reuben Peterson tried to make us believe it was a simple procedure, and he almost convinced me, until I got into a few of these cases. With a child at full term, with an unprepared cervix, splitting the lower segment of the uterus and putting on high forceps is anything but easy, and the man to do it wants the best surroundings and should be thoroughly familiar with the anatomy of the pelvis or he will get into deep water.

The third point is the danger of post-operative hemorrhage in all toxic cases. I do not believe any man should leave an eclamptic patient under two hours after delivery. I remember one case in which I was on the eve of leaving after an hour and a half. I had my hand on the uterus. Labor was precipitated, and she had an eight months' baby. Her uterus welled up and I had a hard time to overcome it. If I had not been there she would have died. Therefore, my caution is to always stay with these women at least two hours after delivery.

**Dr. J. W. Newman**, New Orleans: There are three points I would like to speak of in connection with eclampsia. One point, I am sorry to say, that Dr. Miller has overlooked, and which is a most important point from the standpoint of selection of time for interference in eclamptic cases, is the renal function. I mean by that we should not be guided solely by the amount of albumin. The amount of albumin is only of relative value and not of absolute value. We can be guided as to the progress of our patients by an increase in the amount of albumin that will assist us, but the renal function test, the phthalein test, is the only reliable one. A falling off in the renal function and an increase in the blood pressure, and an increase in the rapidity of the pulse, with slight elevation of temperature, should be our guides.

Another point in regard to the treatment: Unfortunately the profession has been very slow to grasp the suggestion made by Freund, of Berlin, in 1913, and that was the use of serum in eclamptic cases. In fact, in all toxemias of pregnancy, we all know that in eclamptic patients

the nitrogenous waste products, the purin bodies are present in normal quantity. We also know in eclamptic patients that urea is not present in normal quantities; that urea is the final product of oxidation of these nitrogenous waste products; therefore, says, Freund, there must be something in the blood that interferes with the proper oxidation of the purin bodies. In working along the line suggested by veterinary surgeons who, in the case of convulsions in animals, inject ether with oxygen gas and the convulsions cease, Freund thought possibly there was something in the blood that prevented the combining of the oxygen and giving off of the oxygen to oxidize the purin bodies in the urea. On the basis that every woman who is delivered normally generates within her body the product that was necessary to oxidize these products, he withdrew the blood from one woman just delivered and injected serum into the woman in 20 c. c. doses, who was having an eclamptic convulsion, with good results. He then went a step further, on account of difficulty in getting material from time to time, and used defibrinated blood with just as good results. I came across a short article some time ago, but have not been able to put my hands on it since, so that I cannot say where it was published, in which the use of normal horse serum was suggested. I have used it in twenty-five cases of toxemia of pregnancy with splendid results at that period when we want to tide the woman over to have a viable child.

What is there in the normal horse serum which brings about such a change? It cannot be the amount of fluid, because we have injected 2,000 glucose and saline solution; it cannot be the amount of inorganic salts; there must be something contained in the serum that allows the oxygen to combine with these purin bodies and to oxidize to the stage of urea to the final waste products. I have had splendid results from the use of normal horse serum, especially in the toxemia manifested in the vomiting of pregnancy, and in about ten cases we have tided the woman over from six to seven months.

Another point I wish to speak of is with reference to the selection of the operation. From my viewpoint, the Frank extraperitoneal operation has not been accepted by the profession, and why, I cannot understand. When we see these cases with ruptured membranes that are naturally infected, that are handled possibly by the midwife, and then again handled by the doctor and brought into the institution, and then a classical Cesarean operation performed, I cannot understand why the extraperitoneal Cesarean section as advocated by Frank is not performed. It is not as difficult as one would imagine. We have had ten cases that have made uninterrupted recoveries, and, in fact, there has been no difference between the recoveries following such an operation than in the average normal obstetrical case. It is the operation to be preferred. It does away with the mutilation following high forceps, especially if we do episiotomy either unilateral or bilateral, and if we want to do a vaginal Cesarean section there is certainly everything in favor of the extraperitoneal operation.

**Dr. H. E. Miller**, New Orleans (closing): I want to bring out one point that I did not lay enough stress on in the paper, and that is the blood pressure in these cases. I believe a blood pressure record should be made as frequently as a urine examination. After the sixth month it should be made every two weeks. In a good many cases you can have pre-eclamptic symptoms, the woman will go on into convulsions without a great deal of kidney disturbances in one-sixth of the cases, you won't

find any albumin in the urine, a low percentage of urea, and in these cases it is the liver behind it. The liver suffers the most in the cases where you do not find severe kidney disturbanace. In five-sixths of the cases you will find urinary findings.

About dilatation of the cervix, my contention is that we should not be in too much of a hurry about it. Dilatation of the cervix is nature's method of hastening delivery, but if a practitioner goes in and roughly handles the case in bringing about dilatation of the cervix, if he makes a section of that cervix and examines it with a microscope, he will find that his operation was not a dilatation, but a laceration or tearing, and the man who does the accouchement force in an obstetrical case should prepare himself for so doing. As a rule, it ought to take twenty minutes to effect dilatation of the cervix, and nature does it by thinning or drawing back the fibers towards the fundus, and if you dilate manually you tear the muscle fibers, which complicates the subsequent pregnancy.

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## THE IMPORTANCE OF AN EARLY DIAGNOSIS AND TREATMENT OF MIDDLE EAR DISEASES OF CHILDREN.\*

By M. P. BOEBINGER, M. D., New Orleans, La.

Since only fifteen minutes is allowed me to discuss so broad and deep a subject as middle ear diseases of children, the author shall go straight to the most important points of this paper.

EXAMINATION OF EXTERNAL MEATUS.—In order to obtain an otoscopic picture it is necessary to have a clear field. Should the drum be hidden, we must remove the obstruction by means of the forceps, suction, washings, applicators, etc.

In the normal otoscopic picture the entire drum and external canal can be surveyed. The division of the tympanic membrane into quadrants will facilitate the description of the pathological findings. Again, we note the condition of the handle of the malleus, umbo, cone of light, Shrapnell's membrane, whether drum is reddened, thickened, bulging, ruptured, mobility, etc. The Valsalva test is important for demonstration of drum perforations. Crepitant râles point to accumulation of secretion in the middle ear. Politzer's and compressed air are important aids, when available and practical.

The author now has an infant under treatment, in which he used the Valsalva method as an adjunct with most excellent results, obtaining a cure. Never use Politzer's bag, air nor Valsalva's

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

method when you are dealing with a recent or active inflammation along the nasopharyngeal tract if possible.

**ANESTHESIA OF THE EAR.**—Susceptibility to pain differs with various parts of the ear, according to whether any particular part is normal, acutely inflamed or recovering from some affection. Paracentesis can be almost painlessly carried out with a non-inflammatory drum membrane—for instance, in suppurative otitis media; while paracentesis with an inflamed tympanic membrane is very painful without local anesthesia. Susceptibility to pain in the membranous part of the external meatus does not differ from the rest of the skin, while the osseous part of the canal is even normally very sensitive.

Generally speaking, it is easier to induce anesthesia when the epithelial layer of the mucous membrane has been destroyed; also in the presence of granulations, in chronic as compared to acute cases of inflammation. Local anesthesia may be induced in three different ways: (a) Instillation of fluid media; (b) insufflation of powders; (c) injections; (d) fluid media applied on cotton plug.

Anesthesia of the middle ear can only be accomplished by injection of 1 per cent sol. novocain or Schleich's solution. The solution is warmed and injected subperiosteally at the union of the cartilaginous and osseous parts of the external canal. Many operators prefer to use ethyl chloride; a few drops of chloroform or ether is also recommended in extensive ear work. In infants, in Dr. Dupuy's clinic and the author's clinic, we seldom resort to the use of an anesthetic—simply roll up patient in sheet and have an assistant hold him.

**PREPARATION FOR PARACENTESIS.**—Cleanse auricle; the external meatus is cleansed with  $H_2O_2$ , alcohol, boric acid irrigation, etc. If the patient is an infant, no anesthesia is necessary, but in older children equal parts of cocain, menthol, phenol as ear drops, usually suffice as an anodyne. Ethyl chloride is most excellent and is comparatively safe; ether is sometimes used.

Some authors recommend the injection of a Schleich and adrenalin mixture into the tympanic cavity. The operation should be done under aseptic precautions, to avoid the danger of secondary infection. If paracentesis is done at the proper time it will be followed immediately by a sero-hemorrhagic or a hemorrhagico purulent exudate. Immediate evacuation of pus shows that the operation was done too late, that the inflammatory exudate has

been completely transformed into pus, and that all middle ear spaces are replete with pus.

**ACUTE EMPYEMA OF THE MIDDLE EAR.**—Never dry or syringe, but place sterile gauze strips into canal, plug up outer canal with cotton and change often. In favorable cases there is profuse purulent discharge in the course of the next few hours. The fever gradually recedes to normal; the pain disappears completely a few hours after paracentesis. If the above fails to give relief, it is possible we are having faulty drainage or complication.

Almost any kind of a knife will suffice in the hands of an experienced surgeon. The curved one is perhaps better, in order to have a clear view. The style of incision is from above downward, from below upward, following the posterior curve of the drum membrane. The author recommends the incision along the floor of the middle ear, as this is the most dependent portion of the tympanic cavity, also being nearer the trouble-maker (eustachian tube) and avoiding the severing of the chorda tympani nerve. Of course, when we have a typical bulging to deal with we cannot select our spot.

**ACUTE CATARRHAL OTITIS MEDIA (SIMPLE).**—The otoscopic findings show no changes save a retraction of the drum; hearing is not materially reduced, feeling of fullness in the ear, subjective noises. As the inflammatory changes abate in the nasopharyngeal tract the tubo-tympanic catarrh will heal within a few days or else the conditions will grow worse and call for some form of treatment, probably constitutional and local.

**ACUTE CATARRHAL OTITIS MEDIA WITH EFFUSION.**—Pain, reddened drum, more or less pronounced reduction of hearing, pressure, slight elevation of temperature, thickened drum and perhaps bulging.

*Treatment.*—Keep patient in bed, give hot bath, hot drinks, purgation, aspirin, etc. Treat nasopharyngeal tract at home; when patient is able to visit office, use compressed air three times weekly; post--nasal applications of solution Ag. NO<sub>3</sub>,  $\frac{1}{5}$  per cent, and order patient to use solution Ag. NO<sub>3</sub>,  $\frac{1}{8}$  to  $\frac{1}{2}$  per cent into nose t. i. d. with head lower than body and turned to diseased side. The hearing rapidly improves and a complete cure usually takes place in about two weeks. Should the above treatment fail, and we still find our patient growing steadily worse, the only remaining remedy is paracentesis. Chronic catarrh of the middle ear in early childhood is primarily traceable to chronic changes in the nasopharyngeal

space, and particularly to adenoids. The disturbed physiological function of the tube gradually leads to grave manifestations of the tympanic membrane and mucosa of the middle ear, the result being circumscribed or diffuse atrophy, with considerable retraction of the drum membrane. The treatment should be energetic and commence with the nasopharyngeal tract. The air passages should always be made permeable by operative interference, removing all obstacles. Catheterization and massage are carried out three times weekly, but normal hearing will result only in the rarest of cases. Valsalva's method should be forbidden, as it conduces to extend the atrophy. The prognosis depends upon functional findings. It is favorable if at the first examination the passage of air and bougie (Yaukauer) materially improves the hearing; otherwise it will be a waste of time for further treatment.

In some cases, indeed, the gradual transition of simple chronic middle ear catarrh into the more unfavorable chronic adhesive process cannot be arrested.

Subacute recurrent middle ear catarrh is principally observed in children suffering from adenoid vegetation, etc. Acute inflammatory swelling of the enlarged faucial tonsils occurring in the course of a common cold or coryza will in these children immediately lead to all the symptoms of middle ear catarrh. Without proper treatment by skilled and experienced physicians these relapses will increase in frequency and obstinacy. If these children contract an acute infectious disease, there is considerable danger of grave middle ear infections resulting.

**SIMPLE ACUTE INFLAMMATION OF THE MIDDLE EAR—*Etiology:*** In simple acute inflammation of the middle ear we have hyperemia edema of the mucosa, followed by secretion of a serous or sero-hemorrhagic exudate of the middle ear. Injection and swelling of the mucosa decrease in a few days, with subsequent complete cure. It is an infectious disease caused by microorganisms which, however, are of slight virility or quite degenerated.

The staphylococcus pyogenes aureus, the various forms of streptococcus and the influenza bacillus predominate. Mechanical, thermic and chemical irritation may likewise give rise to simple otitis media. Infection through the tube may also take place from sneezing, violently blowing the nose, retching, vomiting, etc.

**Symptoms and Course.**—A sudden pain in ear, impaired hearing, fever, continued severe pain, causing sleepless night, point to purulent middle ear disease.

*Course.*—The entire illness usually lasts from eight to ten days. Temperature reduced to normal; hearing increases, and pain occurs only periodically. Later the drum membrane becomes paler, when the inflammation has run its course; the drum may resume its normal condition, or else run a dragging course.

Treatment of the nasopharyngeal tract is absolutely necessary if the inflammation was caused by chronic changes of that tract. Instillation into the affected ear of anodyne remedies, applications of solution cocain hydrochlorate 5 per cent and solution adrenalin chloride to the eustachian cushion, solution argyrol 10 per cent applied to the post-nasal space, or solution Ag. NO<sub>3</sub>,  $\frac{1}{5}$  per cent, applied to post-nasal space daily for a few days, and Ag. NO<sub>3</sub>,  $\frac{1}{8}$  to  $\frac{1}{2}$  per cent, as nasal drops, t. i. d., with head lower than body and extended to diseased side. The latter treatment has afforded the author most excellent results in acute middle ear catarrhs.

Atrop. sulph., coc. hydrochl., phenol and glycerin as ear drops are also highly efficacious. As an adjunct, heat, irrigations of warm boric acid solutions, normal saline solutions applied several times daily, have a favorable effect. Thorough purgation, rest in bed, hot bath, etc., are the methods of choice in simple catarrhal otitis media. Gentle use of compressed air daily has favorable results. Do paracentesis if above methods fail to offer relief. We can never open drum too soon, when in doubt, but to neglect this operation may lead to serious results. After the inflammatory manifestations have abated, treatment of the nasopharyngeal tract must be instituted. Special attention must be given to adenoids and faucial tonsils.

**ACUTE PURULENT INFLAMMATION OF THE MIDDLE EAR.**—This disease is very common in children and is caused by bacterial infection. In most cases the infection occurs through the auditory or eustachian tube from the nasopharyngeal tract. The author believes that fully 90 per cent of all middle ear disease in children springs from the epipharynx, the external meatus being responsible for conveying infection to the middle ear in traumatic suppuration. Acute suppuration of the tympanic cavity in children is frequently observed in the course of many acute affections of the nasopharyngeal tract and general infectious diseases, such as measles and scarlet fever. In all cases in which infection of the middle ear occurs through the tube there will be swelling of the tubal mucosa, which rapidly spreads to the mucosa of the middle ear (attic,

antrum and often the mastoid process), are filled with an infectious exudate. Ulceration sets in shortly, leading to copious exudation into the middle ear spaces, the pus eventually perforating the tympanic membrane. The secretion is often blood-tinged at first, but will become purulent only at a later stage, the secretion still later becoming stringy, pus diminishes from day to day, and is gradually replaced by mucus. When the secretion has been arrested the perforation closes in normal cases and there will be anatomical and functional restoration to normal.

*Symptoms.*—The prominent symptom is violent pain in ear, which sets in suddenly; loss of rest and sleep, loss of hearing, but later returns toward end of disease; high temperature. A sudden drop of temperature to normal or subnormal in the first days of the inflammation is an unfavorable symptom, unless it is accompanied by an abatement of all other pathological manifestations (often seen in early intracranial involvement).

The second stage is characterized by suppuration. There is no pain; temperature is normal or slightly elevated; profuse secretion of pus during first few days, which decreases in about seven days. Later the pus becomes stringy, and still later consist of almost pure mucus; the secretion lasts two to three weeks. The final stage sets in with the arrest of the discharge and with the gradual filling of the perforation. Extensive perforations require more time to heal.

It may be difficult to decide at first examination whether there is simply an inflammation of the external meatus or a middle ear suppuration besides, especially if there is a multiple furunculosis of the external auditory canal with considerable pus. A tugging or pulling of the auricle will elicit pain, if the seat of the trouble is in the external meatus; no pain if disease is in the middle ear. The otoscopic picture, pus, history, etc., will assist in arriving at diagnosis by exclusion. Treatment is about the same as for acute catarrhal otitis media with effusion, unless we are dealing with perforation, then we should employ cleansing agents, ear irrigations, and strive to assist drainage and ventilation. Locate seat of trouble and correct.

Large perforations are usually the result of neglected treatment, badly managed or chronic suppurative otitis media, and the prognosis is usually bad, while small perforations hold out better prospects, and by energetic and heroic treatment may close spontaneously or else interfere with the proper drainage and call for a counter opening. This can easily be recognized by failure to re-

lieve pain—small amount of secretion, and perhaps damming back of pus through antrum with mastoid symptoms.

EXPLORATORY PARACENTESIS.—When in doubt as to whether a patient has middle ear disease in obscure cases, running a high temperature, pain, etc., an exploratory paracentesis is justifiable, if done under aseptic precautions, as we can do very little harm, and often it is better to open the drum membrane too soon rather than too late. Bleeding following paracentesis usually denotes middle ear disease.

SYMPTOMATIC PECULIARITIES IN INFANTILE OTITIS.—The general practitioner should examine the ears of infants and young children in all febrile affections, even in the absence of symptoms. The possibility of overlooking an inflammation, or even suppuration of the middle ear, is increased by the helplessness of the infant. It is not before the fourth month that infants direct attention to the possibility of an auricular affection by rubbing the ear, putting hand to head, crying whenever the ear or its vicinity is touched, and even avoiding to lie on the affected side. Pus from the tympanic cavity may escape through the eustachian tube, which is short and wide.

Suppuration of the middle ear occurs less frequently in the breast-fed than bottle-fed infants. Owing to congenital cracks of the osseous facial canal there is greater danger in infantile otitis than in otitis media of the adult, of peripheral paralysis of the facial nerve, due to spreading of the inflammation to the connective tissue enveloping the nerve, but any such paralysis is only slight and will disappear in a few days or at the most two or three weeks.

An extremely characteristic symptom of acute infantile otitis is the sudden onset of fever, in which the temperature reaches the highest possible degrees in the first few days. The fever is up to  $104^{\circ}$ . The temperature is of the continuous type and returns to normal, or abnormal temperature is usually a sign of complications. A peculiarity of infantile otitis consists in the great danger of abscess formation in the mastoid, which is favored by the large antrum being loosely connected with the middle ear. These abscesses very rapidly perforate outward, forming a subperiosteal mastoid abscess, the lateral wall of the antrum being a very thin osseous layer, which often contains cartilaginous remnants in rachitic children. This cartilage rapidly ulcerates, a fistula and subperiosteal

abscess resulting. After complete development of an empyema of the middle ear, the fever may abate or entirely disappear without perforation of the membrane, but spontaneous perforation may still later occur.

#### DISCUSSION OF THE PAPER OF DR. BOEBINGER.

**Dr. C. A. Weiss, Baton Rouge:** The essayist has covered the subject so fully that there is very little to say on it. Any one who has witnessed the dire results of what started to be a simple earache cannot help but be impressed with the importance of this subject, and I desire to emphasize a few points the essayist has brought out. A very important point in the examination of children is the way you hold the auricle. If you pull the auricle downward and backward you get a better view of the tympanum than if you pull it in any other direction.

In regard to the examination again, we do not want to be deceived by the white appearance we see at the external auditory canal. That may be an exfoliation of the dead epithelium in front of the drum. If this subject is to appeal to the general practitioner, I think our appeal is more in the capacity of preventing middle ear disease rather than curing it after the disease has been established. Just the mere application of a hot-water bag and Politzer inflation does not end the picture at all. I think the exudates that have been formed there and have become plastic and have caused adhesions produce more after-effects, which are deleterious to the hearing of the patient, than the primary disease itself. All of our cases with either partial or complete deafness in after-life are started with one or two attacks of earache in childhood.

As regards education, we ought to educate the parents as to the prevention of the disease, as there are so many fallacies connected with this. So many parents bring their children to the physician whose ears have been running for three or four weeks, and when the doctor says, "Why didn't you have the child's ears treated before?" they say that every teething child is expected to have a running ear, and that is one of the fallacies we ought to eradicate.

As far as anesthesia is concerned, up to the age where the child can offer active resistance, we do not require anesthesia. If any one has seen a child suffering with acute earache, with nervous symptoms, with beads of perspiration on its forehead, tossing around the bed, the mere opening of the drum will transform the picture almost immediately. The child becomes quiet, falls off into a peaceful slumber, and the next day the child suffers no more. If that does not relieve the condition there is another picture presented, when we have to introduce more active measures.

In talking to the parents about the prevention of this trouble, the mother should be instructed against having the child blow its nose forcibly. After the child is old enough to blow its own nose, forcible atomization of the nose with fluids under pressure should be cautioned against.

In the closure of the drum, as long as the ear is suppurating, I think it is a bad idea to allow the drum to close, and, as a rule, it will not close as long as the ear is suppurating; but if we have a sero-sanguinolent discharge there is a tendency for the drum to close, and under such circumstances it is best to keep it open.

The keynote of the treatment is depletion, both constitutional and local, therapeutic and surgical, and, if constitutional, local and therapeutic measures do not do the work, in this affection more than anything else we make use of the lancet because it does relieve when nothing else will an acute condition.

So far as the after-treatment is concerned, if we inculcate into our teaching of parents the importance of taking care of the naso-pharyngeal space with the same degree of interest that they do the eyes of the newborn, and feeding of children, we will have advanced to the consummation of the happy end of this very important subject.

**Dr. Homer Dupuy**, New Orleans: This most excellent paper specifically states that it deals with the early diagnosis and treatment, and therefore I shall try, as far as possible, to hew to the line and base my remarks principally on the early diagnosis and treatment of middle ear infection in infants.

The essayist has laid stress on some points, and I desire to re-emphasize what he has already said. First, as regards the symptoms of middle ear infection in infancy before perforation of the drum: If there is no discharge from the ear, what are the symptoms? Only two are possible, namely: pain and temperature. The infant unfortunately does not specifically by his actions give you an absolute idea that his trouble lies in the ear, or, if it does lie in the ear, he may shake his head from side to side; but which is the ear? You cannot rely on the pain symptom alone. The temperature is more reliable, provided you can be broad enough to institute other things. In other words, probably with a temperature running from  $99^{\circ}$  to  $104^{\circ}$ , with the child tossing its head around, you may suspect ear trouble, and you may not look for other things first. We have three vulnerable areas in the infant's life—the lower respiratory tract, the gastrointestinal tract, and the middle ear. If you exclude the lower respiratory tract and the intestinal tract, then certainly you must look to the middle ear as the possible cause for the temperature. I said before perforation of the drum, but even so, supposing the infant has otorrhea or a discharge from one ear, and still goes on screaming and has a temperature, what then? Even then the perforation on the side which is discharging may be too small; it may be a pinhole perforation, allowing only a small escape of pus, and the pain still continues, and so does the temperature. Again, the child has two ears—right and left. The right one is discharging, possibly, and you have directed all of your attention to one side, forgetting the other side. The pain is continuous; the temperature keeps up because the child has trouble in the other ear.

As to the symptoms without perforation, in spite of the discharge from both ears, or a profuse otorrhea on both sides, the temperature may keep up, it being  $99^{\circ}$  in the morning and  $104^{\circ}$  in the afternoon. Again, you must be sure about excluding the condition of the lungs. If you have done so, in spite of profuse otorrhea in both ears, you can get help from a blood count. With profuse otorrhea from both sides and a high blood count, you may suspect a baby, although only three months of age, may have a mastoid antrum infection.

As to treatment before perforation, the baby has pain, the baby has temperature, and you have proven by the examination that you wish to do something for him. Dr. Boebinger lays stress on cocain, adrenalin and so forth. If you remember the drum membrane is composed of epithelial cells, it makes simply mechanically impossible for the solution

to gain access to the middle ear to relieve the pain, still less infection. What does the work? The heat. All your drops composed of cocain, adrenalin and so forth do not do the work, but it is the heat that does the work *per se*; therefore, I cannot lay stress on any special solution. In fact, if any one solution can be used with safety I would lay stress on adrenalin; and why? Because the first picture in a middle ear infection, so far as we can see it from the outside, is a highly hyperemic drum membrane, and adrenalin solutions, 1 to 1,000 or 1 to 3,000, heated, of course, applied to the canal, may, by producing ischemia, reduce or relieve the pain. I admit that. Oils ought to be condemned, not because they do not give relief; they do, but not *per se*. But you heat the oils, and it is the heat that the oil transmits to the drum membrane which affords relief of pain. But the oil cakes up in the canal, and when you attempt to get other information of what is going on behind the drum membrane the canal has to be cleansed; it is a hard job sometimes, and therefore oil solutions interfere very much with future observations and ought to be condemned on principle. Before perforation, heat applied with the hot-water bag is possible, but not to the infant. I shall limit myself to adrenalin solutions, because they can produce ischemia and the adrenalin can address itself to the primary stage of infection of the middle ear hyperemia. If the temperature and pain keep on for twenty-four hours our next step, as already described by the essayist, is incision of the drum—not a paracentesis, but a free incision of the eardrum. Now, in the infant, oftentimes it is so small that you can hardly see your way through it. You can hardly see absolutely within the affected ear the right side; it looks off color. The left may be comparatively normal and still be on the safe side. I say this because we know that tympanotomy is, *per se*, innocuous. You may not do any harm whatever. There is no danger of injuring a blood vessel of any size; you can hardly injure the facial nerve or brain. Tympanotomy is innocuous *per se*. Therefore, in the incision of the drum in infants around the first six months of life, I would never be satisfied personally by incising the drum; I am not prepared, because I would not be absolutely sure I could put my finger on the right side only. The baby has two ears, and both are liable to be affected. You open the right side; the temperature rises to 99° to 104°, and unfortunately you devote your attention to that same side without thinking about the mastoid condition. Tympanotomy is justifiable in infants and should always be done on both sides for fear you may neglect to open the right or both sides.

**Dr. William T. Patton**, New Orleans: There is one point that strikes me as being of considerable importance in addressing an audience of general practitioners. We cannot all expect to be specialists. The most important thing in doing ear work is to see. We may tell you what to do, how to do it, but can you do it? The opening of the ear-drum is not a simple matter. I have opened many ear-drums, and there are some ear-drums that I find very hard to open. Take a child, and it is a comparatively simple matter to open the drum. On the other hand, if you take a baby six months old, even the specialist will have a hard time in finding the ear-drum, and you do more damage in trying to open the ear-drum unless you can see, and I venture to say in 80 per cent of such cases you will not open the drum. If you consider the anatomy of the child you will find that the posterior canal goes straight in, and the ear-drum is a continuation of the posterior canal. If you stick a knife in the infant's ear you should be able to see the opening with the head

mirror, but if you have not a head mirror you must see that the rays of light are focusing on that ear-drum, or you cannot see it at all, and you will not be able to treat the ear-drum unless you can see it. With the knife, the opening is made in the posterior canal, you get bleeding, the temperature does not drop, and the patient gets no relief. This is not infrequently done by specialists.

In regard to anesthesia: In patients up to one or two years of age I hardly ever use a local or general anesthetic; but take a child two years of age, that is obstreperous, and it is a different proposition. Five people can hardly hold a two-year-old child from moving and wiggling, and on two separate occasions I have seen local anesthesia used in such cases. In one case in which no anesthesia was used an attempt was made to open the ear-drum and the child jumped and wiggled to such an extent that the external canal was slit right open. Remember how close you are to the brain and jugular and carotid when you are opening a baby's ear-drum. With the least slip inside you will get into the labyrinth, the jugular or carotid. In very young children that are obstreperous I think it is very essential to use an anesthetic. Gas is preferable, but it is expensive. Ethyl chlorid is a safe anesthetic for these cases. If you use cocain, menthol and carbolic solution, you are using about 32 per cent carbolic acid. If you leave the solution two minutes you will get very little or no anesthetic effect. That solution put on a cotton probe and pressed against the ear-drum should stay there ten or fifteen minutes, to get the full anesthetic effect. When you take that out you have got a blanching of the ear canal from the carbolic acid, and the safe thing to do is to immediately apply alcohol to neutralize the carbolic solution, you get very little trouble from it.

In opening the ear-drum the incision should be made high up and down low. In the upper part of the ear-drum you meet with a flaccid membrane, and there are a lot of ligaments which separate the middle ear from the attic, and there may be secretion coming from up in the attic, which is thrown back into the aditus and antrum. If you do not make the incision high up, the ligaments will block or interfere with drainage, and you do not drain the most dependent part. You are draining the aditus through the antrum. The incision should be made low down and high up in order, to establish good drainage. Perforation in the center of the ear-drum will not do much good.

With reference to the use of oils, which was spoken of by Dr. Dupuy, I want to emphasize the point that we should hesitate to use oil of any kind in the ear. It is true it does good by its heat, but it soon cakes up and it takes as long a time to remove it as it does impacted cerumen or wax out of the ear. Druggists always advise green oil. I do not know what it is exactly, but it has some opium in it. It does not do any good except by the heat it generates; it cakes up and you get difficulty in removing it. Ten grains of carbolic to half an ounce of glycerin can be used, and the carbolic acid and glycerin, with heat, will relieve the ear-ache. Dr. Dupuy said that cocain had no effect on the skin. Menthol and carbolic acid both act on the skin. If you rub it on your hand or anywhere you get numbness. The same thing happens in the ear. Ten per cent carbolic acid in glycerin acts on the ear and relieves pain. The glycerin is hygroscopic; it does not cake, and it is an ideal agent for pain in the ear. If the ear-drum continues to pain, it should be opened. If you cannot get a specialist to assist you, and you are not accustomed to using a head mirror in the country, then I would advise that you

spend a week or ten days in one of our clinics, where you can be shown how to use the head mirror, and do it as well as we can, seeing is the main thing in opening the ear-drum.

**Dr. Boebinger**, New Orleans (closing): My chief laid stress on anodyne preparations. Fully 90 per cent of all middle ear troubles begin in the epipharynx, and I still maintain that it is the experience of the majority of men doing ear, nose and throat work. Therefore, if that is so, why monkey with anodyne preparations, or drops of any kind, with the external auditory meatus when the discharge is coming from the epipharynx? Why not go to the seat of the trouble? The outer layer of the drum membrane is cutaneous; it will not take up oils and probably lots of other things.

I am not going to answer Dr. Patton, because he did not answer me. My chief said that there is very little danger in opening the ear-drum. You will find the roof of the jugular fossa often extending up into the middle ear, and very often the roof of the jugular fossa is either missing or is detached, and the jugular vein or bulb extends up into the middle ear; therefore, if you are unskilled, if you lack experience, you can positively cause serious and grave hemorrhage in puncturing the jugular bulb.

**Dr. Homer Dupuy**: I would like to ask Dr. Boebinger how often he has seen injury done to the jugular vein from tympanotomy, or has he ever seen a case?

**Dr. Boebinger**: I have heard of two such cases. In answer to Dr. Patton, who says that you cannot see to open the ear-drum, I want to call attention of the general practitioners to the point that when you are doing a mastoid operation in a young child after the second or fourth year, where the mastoid process is developed, or where there is no mastoid developed, and a very simple antrum, I have seen time and again where you could not see what you were doing, but you can positively puncture the ear-drum and will hear a crackling sound like driving a knife through a piece of tissue paper.

With reference to the use of ethyl chlorid as an anesthetic, when I was resident at the Eye, Ear, Nose and Throat Hospital—and I left there in 1912—we had a record of 20,000 cases anesthetized with ethyl chlorid without a death. Therefore it is a very safe and simple method of anesthesia to use in young children who are kicking up in opening the ear-drum. As far as opening the ear-drum high up is concerned, I called attention to the fact that the most dependent portion of the middle ear was along the floor, remembering that the floor of the middle ear is lower than the floor of the external auditory canal, and you need as much drainage as you can possibly get. We must not forget what the text-books say about the eustachian tube being a trouble maker. If that is so, why not go as near to the trouble-maker as you can get? If I have bulging in the anterior quadrant I must go there. Other things being equal, I would take the floor in preference to the posterior incision. While the antrum is a big field, I would take the closed eustachian tube, because that is the trouble-maker.

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## COMMUNICATION

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### PROCAIN AND NOVOCAIN IDENTICAL.

*To the Editors:*

It appears that in certain quarters the attitude is taken that the local anesthetic sold as procain is not identical with that marketed as novocain. The Subcommittee on Synthetic Drugs of the National Research Council believes it important that this misunderstanding should be corrected, and hence offers the following explanation:

The monohydrochloride of para-amino-benzoyldiethyl-amino-ethanol, which was formerly made in Germany by the Farbwerke vorm. Meister, Lucius and Bruening, Hoechst A. M., and sold under the trade-marked name of novocain, is now manufactured in the United States. Under the provisions of the Trading-With-the-Enemy-Act, the Federal Trade Commission has taken over the patent that gave monopoly for the manufacture and sale of the local anesthetic to the German corporation, and has issued licenses to American concerns for the manufacture of the product. This license makes it a condition that the product first introduced under the proprietary name "novocain" shall be called procain, and that it shall in every way be the same as the article formerly obtained from Germany. To insure this identity with the German novocain, the Federal Trade Commission has submitted the product of each firm licensed to the A. M. A. Chemical Laboratory to establish its chemical identity and purity, and to the Cornell pharmacologist, Dr. R. A. Hatcher, to determine that it was not unduly toxic.

So far, the following firms have been licensed to manufacture and sell procain:

The Abbott Laboratories, Ravenwood, Chicago.  
Farbwerke-Hoechst Company, New York, N. Y.  
Rector Chemical Company, Inc., New York, N. Y.  
Calco Chemical Company, Bound Brook, N. J.

Of these, the first three firms are offering their products for sale at this time, and have secured their admission to new and non-official remedies as brands of procain which comply with the new and non-official remedies standards.

While all firms are required to sell their product under the official name "Procain," the Farbwerke-Hoechst Company is permitted to use the trade designation "Novocain" in addition, since it holds the right to this designation by virtue of trade-mark registration.

In conclusion, procain is identical with the substance first introduced as novocain. In the interest of rational nomenclature, the first term should be used in prescriptions and scientific contributions. If it is deemed necessary to designate the product of a particular firm, this may be done by writing "Procain—Abbott," "Procain—Rector," or "Procain—Farbwerke" or "Procain (Novocain brand)."

JULIUS STIEGLITZ, *Chairman,*

*Subcommittee on Synthetic Drugs, National Research Council.*

The official names so far adopted by the Federal Trade Commission are:

Arsphenamin for the drug marketed as salvarsan, diarsenol and arsenobenzol, etc.

Neorsphenamin for the drug marketed as neosalvarsan, neodiarsenol and novarsenabenzol, etc.

Barbital for the drug marketed as veronal.

Barbital-sodium for the drug marketed as medinal and veronal-sodium.

Procain for the drug marketed as novocain.

Procain nitrate for the drug marketed as novocain nitrate.

Phenyleinchoninic acid for the drug marketed as atophan.

## NEWS AND COMMENT

THE COMMENCEMENT of the Tulane University of Louisiana was held at the French Opera House on June 5 at 11 a. m. At this, the eighty-ninth graduation exercises, degrees were conferred on a total of 172 candidates, of whom sixty-one were in medicine and four in pharmacy. The dean of the graduate school of medicine reported a total attendance during the term of 205 physicans. The orchestration was under the direction of the Newcomb School of Music, the selections being excellent and well executed. The first stanza of "America" and of the "Star-Spangled Banner" was sung by the entire audience at the beginning and the end of the program, respectively. The alumni address, delivered by Edward H. Randolph, of Shreveport, was both eloquent and timely. The conferring of degrees by the president, Dr. Robert Sharp, was made more than usually impressive, owing to the approaching voluntary retirement of that much-loved and esteemed official.

THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY will hold its twenty-third meeting in Denver, August 5, 6

and 7. Dr. Lee Masten Francis, 636 Delaware avenue, Buffalo, is the secretary.

ASSOCIATION OF AMERICAN PHYSICIANS ELECTS OFFICERS.—At the meeting of the Association of American Physicians, May 7 to 11, the following officers were elected: President, Dr. Alexander McPhedran, Toronto; vice-president, Dr. Herman M. Biggs, New York; secretary, Dr. Thos. McCrae, Philadelphia; recorder, Dr. William W. Ford, Baltimore; treasurer, D. Joseph A. Capps, Chicago; councilors, Dr. Theobald Smith, Princeton, N. J., and Dr. Chas. F. Martin, Montreal, Canada. The 1919 meeting will be held in Atlantic City during May.

PEDIATRIC SOCIETY ELECTS OFFICERS.—At its thirtieth annual meeting, held in Lennox, Mass., May 27, 28 and 29, the American Pediatric Society elected the following officers: President, Dr. Edwin E. Graham, Philadelphia; vice-president, Dr. Henry Heiman, New York City; secretary, Dr. Howard C. Carpenter, Philadelphia; treasurer, Dr. Chas. Hunter Dunn, Boston, and recorder, Dr. Oscar M. Schloss, New York City. The next meeting will be held at Atlantic City.

LEGACY TO JOHNS HOPKINS.—The Johns Hopkins University and the Johns Hopkins Hospital have received a legacy valued at \$700,000, which is to be divided equally between the university and the hospital, without any restrictions as to its use.

LOUISIANA NURSES' BOARD OF EXAMINERS.—The semi-annual examination of the Louisiana Nurses' Board of Examiners was held in New Orleans and Shreveport, May 20-22. One hundred applicants qualified as registered nurses, many of whom will enter the Red Cross service and will soon be doing duty "Somewhere in France." The board is composed of the following: Dr. J. T. Crebbin, New Orleans, president; Dr. J. S. Hebert, New Orleans, acting secretary; Dr. C. A. Bahn, Base Hospital No. 24; Dr. G. S. Brown, New Orleans, and Dr. F. J. Frater, Shreveport.

TO SPEED TRAINING OF PUBLIC HEALTH NURSES.—The American Red Cross has allotted \$25,000 to the Henry Street Settlement, New York City, for the purpose of speeding up the training of public health nurses needed here and for reconstruction work in France. The course will be open to three-year undergraduate nurses and the term will be from June 1 to September 30.

DEATH RATE FROM TUBERCULOSIS IN THE PRINCIPAL CITIES OF

THE UNITED STATES.—According to a bulletin published by the Health Department of Chicago, among the ten principal cities of the United States Pittsburgh has the lowest death rate from tuberculosis, for the year 1917, the rate being 147.05 per 100,000 population. Chicago is a close second, with a rate of 148.67. The rates of other cities in this group are: Detroit, 160.66; Boston, 170.87; Cleveland, 174.7; New York, 176.75; Philadelphia, 194.81; Los Angeles, 199.42; St. Louis, 202.95, and Baltimore, 236.61.

MEDICAL SCHOOLS HOLDING SUMMER SESSIONS.—In compliance with a request from the War Department, a number of medical schools throughout the country are continuing the school session through the summer months. By a continuous school session, the junior students will graduate four or five months earlier than otherwise, thereby releasing them for government service.

PARIS ANTI-CANCER INSTITUTE.—An anti-cancer institute, similar to those working in London, New York, Chicago, and the one established by Czerny at Heidelberg, is soon to be founded in Paris. All patients, rich or poor, suffering from tumors will receive the care required for each particular case. There will be laboratories for the use of students, regardless of their nationality, who are interested in the study and treatment of cancer.

SOUVENIRS FROM FRANCE.—The Harvard Medical School has received from Dr. Harvey Cushing, head of the Harvard medical unit in France, a collection of souvenirs, including several pathological specimens from the cases of cranial injury. The Warren Museum will receive these gifts.

DENTAL CLINIC DESTROYED.—The dental clinic at Tuft's Medical School, Boston, was recently destroyed by fire, with a damage amounting to \$25,000. The students aided in saving the fittings of the dental room and the property used for research purposes. The work of the clinic will be carried on in another building.

HOSPITAL FACILITIES IN THE UNITED STATES.—The Medical Section of the Council of National Defense, Washington, D. C., has established a central bureau of information concerning the hospital facilities of the United States in war-time. Information regarding over 1,000 active hospitals has been collated and indexed, and the data will be kept up to date from month to month. Full data will also be collected concerning nearly 8,000 other institutions. A record will be kept of the number of doctors, interns and nurses contributed by each hospital to the service.

ARMY MEDICAL DEPARTMENT MOVES INTO NEW BUILDING.—The offices of the Surgeon General of the Army and the Medical Corps of the Army have been moved into one of the new war buildings recently constructed at Sixth and B streets, Washington, D. C.

DR. CARREL'S HOSPITAL DESTROYED.—In spite of the fact of a constantly flown flag bearing a large red cross and an immense white flag on its lawn as a further mark of identification, the hospital established near the front by Dr. Alexis Carrel, of the Rockefeller Institute, has been persistently bombed by German aviators and almost destroyed. Dr. Carrel will install his hospital in Paris or the suburbs.

STATE BOARD EXAMINATIONS, 1917.—There were 2,605 graduates of 1917 and 4,253, altogether, examined, 96 colleges being represented. The failures were 7 per cent for Class A colleges; 18.4 per cent for B; 35.4 per cent for C; 41.7 per cent for foreign schools; 46.8 per cent for undergraduates. The maximum number of licenses was granted in 1906, the minimum in 1917, numbering 7,865 and 4,061, respectively. Thirty-eight States required one year of collegiate study; thirty, two or more.

IOWA MEDICAL SOCIETY BANS GERMAN INSTRUMENTS.—At its annual meeting on May 1, the Iowa State Medical Society passed resolutions declaring that it should be considered an evidence of pro-Germanism for any members of the Society for the next fifty years to purchase instruments or appliances or other articles made in Germany.

HEALTH OF THE UNITED STATES ARMY.—Surgeon General Gorgas, in an address recently delivered in Chicago, is quoted as saying that the United States Army has surpassed the record of the Japanese Army, heretofore considered the model of the world, in holding down the percentage of disease among its forces.

PERSONALS.—Dr. Edward J. DeBergue was named assistant city coroner to succeed the late Dr. C. W. Groetsch. Dr. DeBergue served two years as private assistant to Dr. Joseph O'Hara, city coroner.

Word has been received from "over there" that Dr. J. G. Dempsey has been placed in charge of one of the large tuberculosis hospitals in France.

REMOVALS.—*Archives of Pediatrics*, from 241-43 West Twenty-third street, to 45 East Seventeenth street, New York City.

DIED.—On June 12, 1918, Dr. Arthur W. de Roaldes, aged 69 years, a native of Opelousas, La.

## BOOK REVIEWS AND NOTICES

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**The American Illustrated Medical Dictionary**, by W. A. Dorland A. M., M. D., F. A. C. S. Ninth edition, revised and enlarged. W. B. Saunders Company, Philadelphia and London.

Besides the enlargement necessary to the growing terminology of medicine, this edition of one of the standard American dictionaries has aimed at an additional service in putting the name of the individual who has been identified with the word defined. This will mean that the name refers either to the discoverer or the originator of the term, disease or thing named. Babinski's reflex, Argyll-Robertson pupil, Duhring's disease, the Widal reaction, are instances where the identity of the individual, with data of birth, nationality, etc., are given. Such an innovation will be much appreciated, as to many medical men just such information has been long wanted, and biographical references are not found everywhere. The general make-up and detail in arrangement conforms to previous editions of this book, and the demand for a ninth edition should speak for its continued popularity.

DYER.

**Diseases of the Skin**, by Richard L. Sutton, M. D. Second edition. C. V. Mosby Company, St. Louis.

Among the several standard texts on skin diseases, Sutton's work holds a firm place. A second edition in so short a time indicates its popularity. More than a hundred new illustrations have been added and several new articles are noted.

DYER.

**Diseases of the Skin. Their Pathology and Treatment**, by Milton B. Hartzell, A. M., M. D., LL. D. J. B. Lippincott Company, Philadelphia and London.

The author's long service in this special field has encouraged the publication of the work in review. It commends itself as an expression of its author's views and observations, with such references as so large a work must demand in according credit to others. The illustrations are numerous. The articles on Eczema, Pemphigus and Syphilis are especially noteworthy for their scope and original handling. The classification of the diseases discussed is a departure from that usually followed, and this may be open to criticism, if the work is to be used as a textbook. *Tinea versicolor*, for example, finds place among the anomalies of pigmentation, while *pinta* is classed with the vegetable parasitic diseases, in a general group of inflammations. The dermatologist will appreciate and understand the individual vagary of such procedure, but the medical student or practitioner might be confused.

Throughout, the author has left the imprint of his keen sense of the importance of the pathology of skin diseases, and, where this has been of diagnostic value, due emphasis has been laid.

Altogether, Dr. Hartzell has added materially to American dermatology by this work.

DYER.

**Clinical Cardiology**, by Selian Neuhof, B. S., M. D. The MacMillan Company, New York.

By means of many illustrations, careful text and systematic detail, the subject of cardiology is excellently presented. The mechanism of apparatus is fully explained and then applied to all phases of irregular

cardiac conditions. Diagnostic methods, differential points and associated findings are given. Blood pressure and its occasion, with concomitant symptoms, are discussed fully. Therapeutic suggestions also find place. In small space, a comprehensive guide has been afforded, which is timely and should render large service. DYER.

**Recollections of a New York Surgeon**, by Arpad G. Gerster, M. D. Paul B. Hoeber, New York.

At the edge of his threescore and ten years, Dr. Arpad G. Gerster, over forty years resident in New York, writes of his life. It is interesting throughout. Of Swiss origin, the early life and growth of this well-known surgeon cast excellent sidelights on the political, economic and social life in Europe during the mid-period of the last century. Among the many who emigrated from Europe to America, both Gerster and his sister, the *prima donna*, have made mark in the country of their adoption.

Necessarily such a book must be saturated with the personality of its chief topic, but the names of many contemporaries appear, of whom intimate glimpses are given.

His long active service with the New York Polyclinic affords the author excellent opportunity of connoting some of its faculty. Lange, Stimson, Markoe, Bull, McBurney, Wyeth, all are sketched in the narrative.

At sixty-three, "then still vigorous," the author joined the Medical Reserve Corps, firm in his belief of universal military service. Says the author: "The tonic and wholesome asperities of military discipline are needed in this our commonwealth to limit the egotistic excesses of an unchecked individualism; they alone can correct the trend of prevalent selfishly utilitarian views of life towards luxurious effeminacy and lawlessness."

Much of a wise philosophy is spread through this biographic narrative—natural enough for one who has lived such a life.

The story of a successful carrier is always a stimulus to those coming on, and it is therefore worth while to sit apart in these days of turmoil and stress and read the story of one who puts his mantle aside—with the thought that—

"Serenely will he wait the final call, and bowing his head in meekness will say, 'Nunc dimittis, Domine.'"

DYER.

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## PUBLICATIONS RECEIVED

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**W. B. SAUNDERS COMPANY**, Philadelphia and London, 1918.

**A Text-Book of Obstetrics**, by Barton Cooke Hirst, A. B., M. D., LL. D., F. A. C. S. Eighth edition, revised and reset.

**Text-Book of Embryology**, by Charles William Prentiss, A. M., Ph. D. Revised and extensively rewritten, by Leslie Brainard Arey, Ph. D. Second edition, enlarged.

**Chemical Pathology**, by H. Gideon Wells, Ph. D., M. D. Third edition, revised and reset.

**The Practice of Pediatrics**, by Charles Gilmore Kerley. Second edition, revised and reset.

**The Elements of the Science of Nutrition**, by Graham Luck, Ph. D., Sc. D., F. R. S.

**Differential Diagnosis.** Volume 11. Presented through an analysis of 317 cases. By Richard C. Cabot, M. D.

**The Principles of Hygiene**, by D. H. Bergey, A. M., M. D., D. P. H. Sixth edition, thoroughly revised.

**A Treatise on Clinical Medicine**, by Wm. Hanna Thomson, M. D., LL. D.

**The Nervous System and Its Conservation**, by Percy Goldthwait Stiles. Second edition, revised.

**The Medical Clinics of North America.** March, 1918. Vol. 1, No. 5.

**Principles of Surgical Nursing**, by Frederick C. Warnshuis, M. D., F. A. C. S.

**C. V. MOSBY COMPANY**, St. Louis, 1918.

**The Treatment of Cavernous and Plexiform Angiomata by the Injection of Boiling Water (Wyeth Method)**, by Francis Reder, M.D., F.A.C.S.

**Emergencies of a General Practice**, by Nathan Clark Morse, A. B., M. D., F. A. C. S.

**Oral Sepsis in Its Relationship to Systemic Disease**, by William W. Duke, M. D., Ph. B.

**Interpretation of Dental and Maxillary Roentgenograms**, by Robert H. Ivy, M. D., D. D. S.

**WASHINGTON GOVERNMENT PRINTING OFFICE**, Washington, D. C.

**Public Health Reports.** Vol. 33, Nos. 20 and 21.

**Field Identification of Malaria-Carrying Mosquitoes**, by Ernest A. Sweet.

#### **MISCELLANEOUS:**

**Sickness Insurance or Sickness Prevention?** (National Industrial Conference Board, 15 Beacon street, Boston.)

**Report of the Board of Administrators of the Louisiana Hospital for the Insane of the State of Louisiana.** Biennial period ending March 31, 1918.

**Shall Disease Triumph in Our Army?** by Major Louis Livingston Seaman. (Published by American Defense Society, Inc., 44 East Thirty-third street, New York.)

**Monthly Bulletin of the Louisiana State Board of Health.** Vol. 7, No. 8, New Orleans.

#### **REPRINTS.**

**Some of the More Important Advances in the Diagnosis and Treatment of Tuberculosis**, by Francis M. Pottenger, A. M., M. D., LL. D.

**Infections With Coccidium and Isospora in Animals in the Philippine Islands and Their Possible Clinical Significance**, by Frank G. Haughwout.

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**MORTUARY REPORT OF NEW ORLEANS.**

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for May, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever	9	3	12
Intermittent Fever (Malarial Cachexia)	1	2	3
Smallpox			
Measles	7		7
Scarlet Fever			
Whooping Cough	3	2	5
Diphtheria and Croup	1		1
Influenza	6	13	19
Cholera Nostras			
Pyemia and Septicemia	1		1
Tuberculosis	42	60	102
Cancer	31	7	38
Rheumatism and Gout	1		1
Diabetes	6	2	8
Alcoholism		1	1
Encephalitis and Meningitis	2	3	5
Locomotor Ataxia	1	1	2
Congestion, Hemorrhage and Softening of Brain	25	14	39
Paralysis	3		3
Convulsions of Infancy	1		1
Other Diseases of Infancy	11	12	23
Tetanus	1		1
Other Nervous Diseases	4		4
Heart Diseases	54	52	106
Bronchitis	1	2	3
Pneumonia and Broncho-Pneumonia	23	29	52
Other Respiratory Diseases		2	2
Ulcer of Stomach	2		2
Other Diseases of the Stomach	3	1	4
Diarrhea, Dysentery and Enteritis	31	16	47
Hernia, Intestinal Obstruction	4	6	10
Cirrhosis of Liver	3	3	6
Other Diseases of the Liver	5	1	6
Simple Peritonitis			
Appendicitis	2	2	4
Bright's Disease	29	19	48
Other Genito-Urinary Diseases	10	7	17
Puerperal Diseases	7	2	9
Senile Debility	2		2
Suicide	4		4
Injuries	21	7	28
All Other Causes	30	28	58
<b>TOTAL</b>	<b>387</b>	<b>297</b>	<b>684</b>

Still-born Children—White, 18; colored, 18; total, 36.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1,000 per Annum for Month—White, 16.58; colored, 34.27; total, 21.38. Non-residents excluded, 18.15.

**METEOROLOGIC SUMMARY (U. S. Weather Bureau).**

Mean atmospheric pressure. . . . . 30.07

Mean temperature. . . . . 76

Total precipitation. . . . . 2.79 inches

Prevailing direction of wind, southeast.



# NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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## EDITORIAL

### ARMY SCHOOL OF NURSING.

The large demand for medical officers for the army has had a certain corollary in the need of trained nurses, and the loyal response of the patriotic women in this calling has been significant. Various suggestions have been made for meeting the civil need, such as the resumption of nursing by those who have married, and by providing partially trained nurses in the emergency.

With the same foresight which has characterized so much of the activities of the Medical Department of the Army, a regular plan for training nurses for military needs has been put in operation. The Army School of Nursing has been established by the Surgeon General, under the Medical Department of the Army, and it offers

a thorough course in nursing to women desiring to care for the sick and wounded soldiers. The course will be systematic, and a diploma will be awarded at the completion of the course. The training is to be given at the military hospitals, and a three years' course of instruction is outlined. Credit of three to nine months will be given applicants with college education. Each hospital employed for training will have its corps of teachers.

The outline of work provides a probationary period of four months, eight months of junior work and twelve months each in intermediate and senior classes. An allowance of \$15 a month is allowed for necessary expenses, covering uniforms, etc.

The published outline of the school invites a large response from young women between 21 and 35 years of age, and especially from those who are inspired to engage in this patriotic service.

Direct information may be had by addressing the Army School of Nursing, through the Surgeon General of the Army, Washington, D. C., or, for this vicinity, the Gulf Division of the Bureau of Nursing of the American Red Cross, Postoffice Building, New Orleans.

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### MOBILIZATION OF PHYSICIANS.

From time to time unofficial or semi-official statements are published regarding a forthcoming mobilization of the members of the medical profession. If the term "mobilization" is used in the figurative sense, well and good, as we are firmly of the opinion that the medical profession should be utilized to the utmost. Used in any other sense, these announcements are both useless and of questionable taste.

The physicians of this country, all in all, have responded nobly and are as patriotic as any other body of men. They have not waited to be drafted, nor have they drawn the line at age; many volunteers have been refused for being over the age limit. That a few, here and there, have dodged their responsibility is bound to be and is admitted, but those are exceptions that prove the rule.

Movements already inaugurated will no doubt further stimulate recruiting among the physicians left, but it must not be lost sight of that already some communities and institutions are suffering for the lack of medical services.

Any really compulsory measures would be of doubtful legality.

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## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### THE DIETETIC TREATMENT OF LIVER DISEASES.\*

By ALLAN EUSTIS, B. S., Ph. B., M. D., New Orleans, La.

The importance of a proper diet in such conditions as present deficient liver function is manifest when one considers the frequency with which the latter is found in diseases beside cirrhosis and other primary hepatic disease.

A consideration of a few will be of interest.

GALL-BLADDER DISEASE.—In this condition there is an associated cholangitis, varying in intensity with the virulence of the infection, and certainly dependent, in part, on injudicious dieting. Further, after operations upon the gall-bladder there is always more or less cholangitis, and the importance of a proper diet in the post-operative treatment of gall-bladder cases has been urged by me for several years.

ECLAMPSIA.—The trained obstetrician regards this condition as primarily hepatic, due to central necroses in the liver lobules, and the albuminuria as only a secondary manifestation of the toxemia. However, I have found that even they make little attempt to spare the liver in their dietetic measures, while the average practitioner waits until large amounts of albumin appear, or even for convulsions, before any attempt is made to regulate the diet. I believe firmly that it is possible to avoid eclampsia by proper dietetic measures, and that the time will come when a case of eclampsia will undermine an obstetrician's reputation as much as one of puerperal sepsis. The day has passed when the obstetrician has done his full duty when he examines the urine once a week for albumin and sugar; for, by more frequent tests for indican and urobilinogen, he is in a position to determine the liver function of any case. This opinion is based upon the experience gained during my four years of rural practice in a locality where eclampsia is very prevalent. While there I was able to guide women, who had had eclampsia in previous labors, through normal parturition, without even an al-

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

buminuria. Other observers have reported some interesting experimental work, which will be referred to later, in its relation to eclampsia.

**MALARIAL FEVER.**—We all recognize the liver as being damaged in malaria, and calomel is as frequently administered as quinin; and yet, how many practitioners consider the diet in the treatment of malarial fever?

This same question can justly be made to include loss of cardiac compensation with secondary passive congestion of the liver; typhoid fever, in which there is always more or less hepatic degeneration, and especially the common term "biliousness," in which there is a passive congestion of the liver from overwork in detoxicating the poisons coming from the intestinal canal.

Yellow fever should also be considered a disease in which the liver should be spared on account of its fatty degeneration. A rational diet for liver diseases can be prescribed only after a thorough knowledge of the physiology of the liver and of the chemical pathology in diseased conditions of the organ.

#### PHYSIOLOGY OF THE LIVER.

Besides the secretion of bile and the storing of glycogen in its cells, we have known for a long time that a large proportion of the amino acids in the portal blood are deaminized by the liver cells and that the liver is the principal site of urea formation. It has also been known for years that dogs with an Eck fistula (an anastomosis between the portal vein and vena cava), if fed on meat, develop a toxemia and die in a few days in coma or convulsions. Examination of the blood shows a relative decrease in the urea content and a relative increase in the ammonia content, which has led certain observers<sup>1</sup> to believe that the intoxication is due to an alkalosis, probably from ammonia salts. However, on the other hand, experimental and clinical data all point to a tendency to acidosis in liver insufficiency. It is more probable that, by our present methods of estimating ammonia in blood, many volatile amines are estimated as ammonia, and that the relative increase in ammonia in the portal blood and in the blood of dogs with Eck fistulae is really due to the presence of putrefactive amines absorbed from the intestinal canal, these being broken up into urea by the normal liver. In experiments, which have never been published, I have demonstrated that the two diamines, putrescin and

cadaverin, pass over with ammonia and cannot be detected from the latter by the Folin method of determining ammonia in blood. As this method, or some modification of it, is usually employed, one can readily understand that with such volatile amines as methylamin, dimethylamin and trimethylamin arising from protein putrefaction the apparent ammonia content will be still further increased. I have endeavored for seven years to find or perfect a method for the separation of these volatile amines from ammonia, but without success, and therefore evidence, as yet, is not conclusive on this point.

These volatile amines, arising from protein putrefaction, are but slightly toxic, although capable of causing local necrosis when injected subcutaneously, according to such a well-known authority as H. Gideon Wells.<sup>2</sup> The higher, non-volatile amines, however, are extremely toxic, and the only explanation of their failure to manifest themselves in the normal dog or individual is that in passing through the liver they are in some way detoxicated. Certain of these detoxication processes are well known. Indol, which Herter<sup>3</sup> has shown to produce in man headache, irritability, insomnia and confusion, is detoxicated by the liver by oxidation to potassium indoxyl sulfate or indican. Richards and Howland<sup>4</sup> have claimed that this toxicity is markedly increased when conditions favoring lowered oxidation obtain. Ewins and Laidlaw<sup>5</sup> have further shown that paraoxyphenylethylamin, a toxic amine from the putrefaction of tyrosin, is broken up by the liver into paraoxyphenylacetic acid and urea, while I have reported elsewhere<sup>6</sup> experiments to prove that the liver of the turkey-buzzard, at least, contains an enzyme which is capable of detoxicating solutions of betaimidazolethylamin, a highly toxic amine derived from the putrefaction of histidin. This detoxicating function of the liver, therefore, is its most important function, and failure thereof soon results in death, and yet we find barely a paragraph devoted to it in our text-books on physiology. No further argument is necessary to convince me that any efforts tending to relieve the liver of work should be exerted towards overcoming any tendency to absorption of protein putrefactive products.

In a paper before this Society, in 1912, I reported the results of 363 tests of urine for the presence of urobilinogen in various cases, using Ehrlich's aldehyde reagent, and at that time I stated that in each case in which urobilinogen was present the liver was clinically deficient in function.

During the past three years, in my office alone, 5,042 examinations of urine have been made, in which this reagent was used, and in each instance where a positive test was obtained the liver was found diseased. Further, by means of this test, it has been possible to accurately note the effect of intestinal poisons upon the liver. Patients giving a positive urobilinogen test, after purgation and being kept on a low protein diet, have shown a negative test for as long as two months, the urobilinogen reappearing in a few days after they are allowed to run a heavy indicanuria, the urobilinogen again disappearing, but slowly, after the intestinal toxemia is overcome.

Certain experimental data support this theory. Whipple and Sperry,<sup>7</sup> in their experiments on dogs in which liver necrosis was produced by chloroform, while not claiming their evidence as conclusive, reported failure to obtain the typical chloroform necrosis of the liver cells in dogs with Eck fistulæ—i. e., in which the liver was not subjected directly to the influence of blood coming from the intestinal canal. In conclusion, they state:

“There are many points in favor of the view that accumulation of waste products in the blood as it flows from the edge to the center of the lobule renders the central cells more prone to injury.”

Later, Opie and Alford<sup>8</sup> produced liver necrosis in rats by subcutaneous injections of chloroform mixed with two parts of paraffin oil. One set of rats was fed on oatmeal and cane sugar, one set on suet, and one set on meat. The animals which received carbohydrates survived, whereas those which received meat and fat died in from one to four days. They state, in closing:

“Since necrosis of the liver from chloroform in animals coincides so closely with a variety of conditions in man, namely: toxemia of pregnancy, acute yellow atrophy of the liver, etc., the foregoing experiments suggest that a carbohydrate diet may be found to influence favorably the course of these diseases, whereas fat may have grave danger.”

Quite recently Lavake<sup>9</sup> repeated the experiments of Opie and Alford and advocates a high carbohydrate in pre-eclamptic toxemia, as he considers that the carbohydrates have a distinctly protective influence on the liver cells. In line with this, it is interesting to note that in a recent issue of the *Journal of the American Medical Association*<sup>10</sup> it is stated that the incidence of eclampsia has markedly decreased in Berlin since the war began, a 75 per cent reduction at the Charité and a 66 per cent reduction at the Frauen Klinik, the reduction being ascribed to the scarcity of meat.

*Diet.*—The diet should consist essentially of an abundance of carbohydrates, and, while a transient glycosuria may be produced, this soon disappears as the liver cells regenerate. This must be selected according to the gastric function of the patient, and, if vomiting exists, glucose by drip proctoclysis or by hypodermoclysis must be resorted to. Where there is little disturbance with gastric function the following diet list should be selected from, and the patient maintained on this diet as long as a positive aldehyde reaction is obtained, or as long as there is an intestinal toxemia.

#### DIET LIST FOR PATIENTS WITH DEFECTIVE LIVER FUNCTION.

##### May Take.

**Soups:** All clear soups, vegetable broths, puree of corn, beans, peas, asparagus, spinach, celery, onions, potatoes and tomatoes.

**Eggs:** None.

**Fish:** None.

**Meat, Game or Poultry:** None.

**Farinaceous:** Oatmeal, rice, sago, hominy, grits, cracked wheat, whole wheat bread or biscuits, corn, rye and Graham bread, rolls, dry and buttered toast, crackers, muffins, waffles, batter cakes, wafers, grape nuts, macaroni, noodles and spaghetti.

**Vegetables:** Potatoes (sweet and Irish), green peas, string beans, beets, carrots, celery, spinach, artichokes, alligator pears, eggplants, lettuce and onions. All vegetables **except** cabbage, cauliflower and turnips.

**Desserts:** Rice and sago with a little cream and sugar, figs, raisins, nuts and syrup, stewed fruit, preserves, jellies, jams, marmalades and gelatin; prunes, apples and pears, either raw or cooked.

**Drinks:** Tea and coffee (with cream, but **not** milk), grape juice, orangeade, lemonade, limeade and Vichy, cocoa. An abundance of pure water, cold or hot.

##### Must Not Take.

Veal, pork, goose, duck; salted, dry, potted or preserved fish or meat (except crisp bacon); oysters, crabs, salmon, lobster, shrimp, mackerel, eggs, turtle and ox-tail soup, gumbo, patties, mushrooms, mince pie, cabbage, cauliflower, turnips and cheese; alcohol.

Negative tests for urobilinogen and indican extending over a week, indicate that either eggs, fish or easily digestible meats may be taken in moderation, in my practice this being limited to not oftener than once a day. It will be found that buttermilk to which lactose has been added is the best animal protein on which to start, but I cannot too strongly urge a constant control of the diet by frequent examinations of the urine.

A detailed record of cases in which the diet was observed to influence the liver function will simply prolong this paper unnecessarily and will be dispensed with. I will state again, in closing, however,

that careful observation of patients with defective liver function, in whom liver function has apparently regained its normal capacity, have invariably shown evidences of decreased hepatic function when allowed much animal protein, with resulting intestinal putrefaction of same, as evidenced not only by a return of a positive aldehyde test, but in a return of headaches, vertigo, nausea and occasional vomiting.

#### SUMMARY.

Experimental and clinical data indicate that in all conditions in which the liver is diseased a high carbohydrate diet is indicated.

In conjunction with the dietetic regime, efforts should be directed towards overcoming any tendency to the production of intestinal toxemia.

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#### DISCUSSION ON THE PAPER OF DR. EUSTIS.

**Dr. J. E. Knighton, Shreveport:** I think Dr. Eustis' paper serves to emphasize what our chairman said at the opening of this section this morning, namely: the importance of paying more attention to and having a better knowledge of internal medicine. As a matter of fact, I think we all recognize the situation that the majority of the profession do not give that attention to internal medicine that they should. A young man comes out of school with a diploma and looks forward to the time when he can do major surgical operation. The spectacular side of medicine appeals to him more than tedious, painstaking scientific work that is brought out and developed by internal medicine.

I think the Society is indebted to Dr. Eustis for bringing this phase of internal medicine to our attention this morning. We do not give the attention to internal medicine that we should, and especially we do not give attention to dietetics as we should. We should recognize the fact that dietetics is one of the most important parts of therapeutics with reference to any of the diseases. We should ever keep this in mind.

I can add nothing of value to what the doctor has said in his paper. I simply want to emphasize the importance of the medical profession paying more attention to internal medicine, and especially to dietetics.

There is one point he brought out that I want to emphasize, and it is a point that has been pointed out for some years past—that in gall-bladder diseases we have an associated cholangitis, and especially after operation, and in these cases, surgical as they are, very little attention is paid to the dietetic management of them afterwards. Dr. Eustis him-

self, as I remember, called attention to this point before the Surgical Section of the Southern Medical Association at Memphis last fall. He did not mention it in his paper, but I would emphasize it, and I hope he will mention it in closing the discussion. Every case of gall-bladder operation should have special attention with reference to dietetic management after operation. If these cases do not receive such attention after operation, your results will not be what you think they should be.

Again, I wish to thank Dr. Eustis for bringing this subject so forcibly to our attention this morning.

**Dr. R. B. Wallace, Alexandria:** Dr. Eustis has brought a very important subject before us, and it should be of interest to all of us who are engaged in medical and surgical work. He goes into the subject much more broadly and minutely than we can appreciate, but what he has said sets us thinking. That is one of the great advantages of coming to these meetings. It gives us the opportunity to be free in the expression of our opinions and to derive knowledge from others.

I would like to ask Dr. Eustis how he makes that particular test and whether it is to be brought out in connection with the publication of his paper?

**Dr. F. W. Parham, New Orleans:** I did not expect to be called upon to participate in this discussion. I devote myself almost entirely to surgical work, and have been frequently associated with Dr. Eustis and have derived helpful assistance from his suggestions along the line he has brought out to-day. I believe that we, as surgeons, neglect too much the assistance of the internist. I often feel like saying this—that the surgeon works with his hands, while the internist works with his head, although the surgeon shows the internist something by making a hole, and sometimes correcting his diagnosis. That leads me to say that we ought to have coöperation between the surgeon and internist in our most important surgical work. Frequently the surgeon is misled by the failure to consider the medical treatment of his cases particularly, and there is where the sensible, common-sense internist, one who is scientific in his attainments, will give greater assistance to the surgeon.

In connection with gall-bladder trouble, our cases do not always improve as we think they should. We have done a satisfactory operation, according to the rules of our art, and yet the patient does not continue to improve as we think, following our general experience, such a patient should improve. There is an instance where the internist frequently will help to turn the scales in the right direction.

I believe Dr. Eustis has worked out a very important line of suggestions by these methods of examination to which he subjects such patients. After a gall-bladder operation it is important to follow some sort of dietary. Not all people are able to take eggs as soon as the stomach is ready for them. I have seen people poisoned by eggs after operation. I have seen considerable trouble caused by the use of eggs frequently. I remember one patient who had a most intense intractable nausea, and I was unable to do anything for that case until I stopped eggs. They were hunting the country for fresh eggs to give to this patient. As soon as we stopped the eggs the patient did better, and finally got well. I have made it a rule, after all operative procedures, not to give proteins or fatty foods, but to rely chiefly upon starches, and I have been influenced by Dr. Eustis in following this plan, after a serious operation, until all nausea has completely disappeared and the patient seems to be incapable of retaining anything. I never depart from the rule of being careful about the condition of such articles of diet as Dr. Eustis has

pointed out that may give rise to undesirable changes and turn the scales in the wrong way.

**Dr. Joseph J. Frater, Shreveport:** It seems to me some of the things brought out in this paper we have all more or less realized. Medicine, with some of us who are here, is divided into surgeons and general practitioners, and a whole lot of us are simple general practitioners. Some of the surgeons who operate frequently and are so well versed in internal medicine are just general practitioners. I would like to ask Dr. Eustis if he can suggest some good work on dietetics that will help us surgeons and general practitioners? We need to study more thoroughly some of these problems. Some of us have good men to refer to, like Dr. Eustis and Dr. Knighton, who are ever ready and willing to help us out of any trouble. If we had more knowledge of these cases and of this subject we might save our patients and ourselves some anxious rest. When we try to put our patients on a restricted diet—that is, leaving off meats—they complain. They do not like it, and yet we know, from many tests that have been made, that some men have been rendered physically very capable by following a strictly vegetable diet. Many of you doubtless recall the tests that were made at Battle Creek, Mich. As you recall, they took a number of college boys and fed them on strong meats where they were engaged in athletics. They also took another bunch from Battle Creek and fed them on a strictly vegetable diet; and you remember that the men who won out in these tests were those who were put on a strictly vegetable diet and not the strong-meat men.

**Dr. John M. Barrier, Delhi:** I cannot add to this discussion from a scientific standpoint, but I was reminded of what the last gentleman said in reference to the general practitioner. I find that the question of dietetics has been very helpful to me in my practice. When I have been unable to make a diagnosis of any particular trouble with the stomach, liver or what not, I have usually prescribed a mild placebo and put the patient on a restricted diet, lessening the amount and cutting out the strong meats, and so on.

**Dr. J. L. Adams, Monroe:** I am sure that we are all of one accord in appreciating the value of Dr. Eustis' paper, and I can assure him that he has our support from beginning to end. It is a very important subject, that is passed up usually by physicians and largely passed up by the textbooks.

The average physician, in prescribing a diet, tells the mother to keep the patient on a soft diet, and the mother or the attendant is made responsible for what constitutes a soft diet. It is like our judgment—it depends where we are as to what a soft diet is.

I would like to emphasize the point brought out relative to having coöperation of the internist in surgical work. I do a little surgery myself, and I see a little surgery done by others in New Orleans and elsewhere, and I never attempt to do an operation without feeling that I need the hearty coöperation of an experienced internist. It does not make much difference about the magnitude of the operation, you need some man to steer you safely on the internal side of the proposition. You can get into serious trouble unless the internal side of the case is well cared for. That brings out, as Dr. Knighton said a while ago, renewed insistence on the fact that we should encourage internal medicine more. Usually those fellows in the medical centers do the operative work and we general practitioners are simply shipping clerks. We send the cases to the medical centers to be operated on, and the surgeons fail to give us value received for our shipments. We send them our cases and they

should help us in part by encouraging and assisting us to study our cases more carefully and closely and help them make a diagnosis. The surgeon is put to his wit's end, for the reason that he has not the time or opportunity to study the case as carefully as he should do, and the practitioner who has brought the case to him for some reason or other has not given the patient the proper amount of attention and study, so that both the surgeon and practitioner are in the dark.

**Dr. Allan A. Eustis**, New Orleans (closing): I wish to thank the several speakers for the very kind reception of my paper. It is a subject I have been much interested in for a good many years, and it is a great relief to get up before this Society now and not find a dozen or four dozen broad grins on the faces of the men. I believe that there is a lot in this, and I have attempted in some individual work that I have done on this question to set it on a sound, scientific basis.

Regarding the post-operative treatment of gall-bladder disease, I would like to mention, in passing, that phase of the subject, because I called attention to the relationship that is always associated. I say that because I have followed numerous cases in which you will find positive aldehyde appearing after operation on the gall-bladder, which will not obtain in an operation on other parts of the body, so that it cannot be the effect of the anesthetic.

Regarding the aldehyde test which I use in this work, and which has not met with universal use in this country, I will say that an article recently appeared in the **American Journal of the Medical Sciences**, in which the author stated that the purol derivative would give a positive aldehyde test. The only purol derivative is urobilinogen, and if you do get the purol derivative it will not get in there unless the liver cells are defective. While I do not like to quote from our enemies, we have a lot to learn from Germany and Austria. I have been using this test for the past eight years. Of the last lot, I bought four ounces, realizing it is a German product which would enhance in value. I paid \$9.30 an ounce for that salt, and unless I was getting results I would not be so idiotic as to pay that amount for it. This salt is selling to-day for \$20 an ounce. It does not take a great deal.

The formula for Ehrlich's aldehyde reagent is:

Paradimethylamidobenz-aldehyde . . . . .	2 grams
Hydrochloric acid (chemically pure) . . . . .	20 c. c.
Water. . . . .	80 c. c.

Two grams of it, or one gram, is enough for three or four hundred determinations; so that it does not take a great deal. You can buy a certain amount wholesale in dram vials. You do not have to invest \$20 in it. The test is made by simply adding two or three drops of this reagent to a small amount of urine in a test tube, and, in the presence of urobilinogen, a bright cherry-red color is obtained. I believe it will be generally adopted in this country now, because I noticed in a recent article in the **American Journal of the Medical Sciences** that it is being used as a uniform procedure in the Mayo Clinic, and it will be obtained in this country on a cheaper basis.

I wish to thank Dr. Parham for his kind remarks and to bring forward the importance of cooperation between the surgeon and internist, not that I am trying to increase my practice, but from the patient's standpoint, because I have had more than one disagreeable experience with surgeons who have operated on cases that I have referred to them. They are not all so broad-minded as Dr. Parham. I recall one patient in whom

I was very much interested, a relative of mine, who had a laparotomy performed for an extensive pelvic condition, with appendectomy. She was vomiting for three or four days. I found that the nurse was giving soft-boiled eggs. I told her to stop it. The surgeon came along and disagreed with me. I went back the next day and found that the patient was still getting eggs. I told the surgeon that I would not give the patient eggs, as her urine was loaded with indican, and the surgeon said to me, "You are a damn crank on indican." Here was an instance where the surgeon overstepped the bounds. Some surgeons do not hesitate to coöperate with the internist in these cases, while others do not.

I cannot stress too much the importance of the surgeon coöperating with the internist as regards post-operative treatment. I have seen patients poisoned by improper dietetic measures, and I cannot urge too strongly the importance of dieting after post-operative procedures and more especially after gall-bladder cases.

In reply to Dr. Frater, I dislike to say it, but there is not any good book on dietetics, for the simple reason that every book on the market has been written by a physiological chemist, or a laboratory man without clinical experience, or these books have been written by a clinician, a gastroenterologist, with a limited knowledge of physiological chemistry. In most of the books on the market, if you read the chapters on the dietetics of liver diseases you will find that they say that the liver should be conserved and carbohydrates should be restricted as much as possible and an abundance of fats given, absolutely contraindicated. The best book I have seen is one by Tibbles on "Diet in Health and Disease."

There is another good book, written by Smith, of Boston. It is readable, but I do not coincide with all that he says. However, he gives some good points, and the title of this book is "What to Eat, and Why."

I believe and feel that we will get better results if there is greater coöperation between the surgeon and internist, because there is no doubt, in my experience, that 90 per cent of the cases that we see are suffering from overindulgence in proteins and from subsequent protein poisoning.

**Dr. Leckert:** I would like to say that Dr. Eustis is altogether too modest to say that he has written a book himself on dietetics, but he has done so, and I would like to ask him when that book is going to be published?

**Dr. Eustis:** If any of you have attempted to write a book in the midst of an actual busy practice you realize how difficult it is. The manuscript is ready for publication, but every time I thought of sending it to the publisher something new came out and I delayed it. The principal reason for the delay of two years is on account of the recent work of Allen on the treatment of diabetes, to which I do not wholly subscribe, and I have been waiting for a sufficient number of cases to bolster up my side and to give some reasons for advocating that generally accepted method.

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**RADIUM TREATMENT OF FIBROID OF THE UTERUS.\***

By ERNEST CHARLES SAMUEL, M. D.,

Radium Institute, Touro Infirmary, New Orleans, La.

Dr. Robert Abbe made the statement some few years ago that he had successfully treated with radium a large fibroid of the uterus. His statement was received with a great deal of skepticism by a large majority of the medical profession, but as time has gone on and radium therapy has been placed on a more rational basis we must realize that we have a very potent instrument in the possession of the radium salts.

When Dr. Abbe started his work the only place where radium was obtainable was from the Curie Laboratory, of Paris. There was no standard of measurement, such as the Curie unit, which we accept to-day; no definite screening measures provided. The physics of radium at that time were very well understood, but the physiology was an unknown quantity, and it is such men as Becquerell we must thank for blazing the way to a more rational therapy than was first instituted. Radium, like the X-ray, before it was well understood, produced some very mean burns, and, of course, was condemned, only because there was insufficient evidence as to what we were able to accomplish with the radio salts.

A great deal of discussion has been raised in this country and abroad as to how much radium (or what is the smallest amount of radium) we should use in these conditions. The concensus of opinion among the radium workers at the present is that fifty milligrams of the element should be the minimum amount of salts that should be used. The average fibroid generally requires at least fifty milligrams inserted in the uterus to have the desired effect, and repeated by the method that will be described later.

I would first take up the indications for radiation of the non-malignant tumors of the uterus. These are found in cases where the hemoglobin is under 50 per cent on the Talquest scale, due, as you know, to the terrible bleeding that usually accompanies these cases, and where operative interference cannot even be considered. For patients with cardiac or renal complications, or where the blood pressure of patients is over 200 millimeters of mercury, or for patients not willing to submit to any operative interference whatsoever, or in cases where you wish to preserve the pelvic organs, and

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where a myomectomy is not indicated, treatment with radium is the best possible method.

I am still of the opinion that purely uncomplicated cases of fibroid, where a woman has passed the child-bearing period, surgery is still the best procedure, but in my last statement I wish more than ever to emphasize the fact that the treatment can be carried just so far, and not produce a menopause, and the woman still retains her function that she was intended for—that is, to produce children, which we all know is the desire of most of these patients suffering from this pathological condition.

Patients showing the counter-indications for radiation, as I have said before, the uncomplicated cases after having passed beyond thirty-five or forty years of age, should be operated upon. All sloughing fibroids, pedunculated tumors, cases where there is suspicion of malignancy, are in this class. I wish to emphasize my last statement, as I believe that the tumor that is left alone, such as the usual fibroid, does not undergo malignant changes. It is either malignant from the beginning or is benign. In cases with serious pelvic complications, such as a great amount of adhesions or with large pus tubes, a preliminary curetment for diagnosis is always advisable.

I would like to say a few words about technic. In the intra-uterine applications of radium we have to observe the same strict rules of asepsis that we do in any vaginal operative interference, as the tubes that contain the radium come in contact with the endometrium, and, as we know, no infectious material should be carried in. Patients should be given a light cathartic the night before, and report for treatment early in the morning. An enema, followed by a lysol douche, is given. If the patient is nervous, a hypodermic of one-quarter grain of morphia is given; this usually controls pain and nervousness after the tube has been inserted. The celluloid tube which contains your radium dosages is sealed with paraffin and put in 40 per cent formalin for at least twenty minutes before it is used. A string attached to the tube by an eye, after the tube is inserted into the uterus, acts as an anchor, which is attached to the skin by a small strip of adhesive, also facilitating the withdrawal when the treatment is finished. It generally requires some little dilatation, which is easily accomplished with the Hagar graduated dilator, producing very little discomfort to the patient. Some patients complain most pitifully, and others do not, and in over one thousand applications given we have only required an anesthetic

twice. The vagina is next packed with sterile gauze, to prevent the expelling of the tube if the patient is put to bed and not allowed to get up, and must use the bed-pan. Some patients complain a great deal of nausea, and others do not, so that you can never say exactly what is going to take place.

The usual exposure should last for twelve hours, using 50 milligrams of the element, which gives 600 milligram hours as a dose. The patient is requested to return in seven days for another exposure. This is repeated for three successive weeks, when a menstrual period is allowed to come in before resuming the treatment, and if the first treatment is given early after the last menstrual period, and the patient is over thirty-five years of age, we sometimes do not find a recurrence of the flow, and, if it does appear, it is usually diminished in amount.

After thorough examination by the referring physician the patient is allowed to rest for three or four weeks, and at the end of this time is examined again, when considerable reduction in the size of the tumor is generally noticed. Another series of treatments is given, of shorter duration—from six to eight hours—and at the end of this time usually suffices. It takes from six to seven months for the tumor to entirely disappear, in some cases even longer, and in some instances menstruation has been stopped, with no appreciable effect on the tumor, but it does not seem to worry the patient very much.

Some patients complain, after radiation, of a thin, watery discharge. This is due to the action of the radium on the glands of the cervix and endometrium. This disagreeable symptom rapidly passes off, especially if the patient takes the saline douches that are prescribed twice daily, as warm as she can stand it. We have not observed any other unpleasant symptoms in the large number of cases that have been treated up to the present time.

Radium is preferable to the X-ray, for the reason that radium destroys the endometrium, and the Röntgen ray causes cessation of the ovarian activity, and the symptoms of the change of life are, therefore, very mild after radium treatment, whereas they are very much more pronounced after the Röntgen treatment, due, as you know, to its action on the ovary. Another reason: the Röntgen ray requires more of the patients' time, for the reason that they have to come to the radiologist for repeated radiation, this not being the case with radium; it only requires the desired number of hours, as mentioned previously.

The time has been too short since radium has been more generally used for these conditions to draw any absolute conclusions. If we can observe these patients at the end of from seven to ten years and still find them free of a tumor and no return of the hemorrhage we could say that we have accomplished a great deal and have not subjected the patient to the dangers of operative interference.

The tables of a summary of our work up to the present time will be attached to this paper and will be for your consideration.

#### DISCUSSION ON THE PAPER OF DR. SAMUEL.

**Dr. W. D. Phillips**, New Orleans: I came in a little late and did not hear all of Dr. Samuel's paper, but I agree with him in reference to the use of radium in gynecological cases. In one type of case particularly—that is, the hyperplastic endometritis cases—radium works wonderfully in some of them. I am sure we have all had an opportunity of curetting such cases two or three times without any results. The bleeding would let up for a while, and then recur. I have used radium in such cases and have obtained excellent results with one dose, but in a few cases I have had we used one dose, extending over twenty-four hours, and it stopped bleeding entirely. I had a case recently in which I used it in a recurrent malignancy in the vault of the vagina. The woman had been operated on some time before, and the condition recurred. This patient came in because of foul-smelling discharge and also bleeding. For a little while we could control the hemorrhage, but there was practically nothing to do for her except to give two doses, twelve hours apart, of radium and have her come to the office every day. It is given at intervals of three or four days, and the foul-smelling discharge has stopped, and the bleeding surface has practically disappeared. Of course, I do not think we can say that case is absolutely cured, but by repeating the doses of radium we may be able to tide the woman over for several months with a comfortable existence.

As to the treatment of cases of large fibroid, I had a case recently that I was ready to operate on, but some one suggested the use of radium. The patient consulted another physician. He agreed to the use of radium if I would permit it. In large fibroid tumor cases I have been afraid of radium, particularly large fibroids of long standing, because of the danger of changes taking place. We have seen fibroids that have existed for a long time and then have operated on them. In some cases we have done supravaginal amputation, and there has been a recurrence of the disease in the stump. We know that in large fibroid cases these changes take place, and I hesitated in this particular case because the fibroid had existed for quite a while. I gave in, and was surprised, after one dose of radium, to see the change that had taken place in the tumor of the subserous type pressing on the anterior wall of the vagina and bladder. After one dose of radium, extending over twenty-four hours, that tumor had practically disappeared. The patient has had a second dose, and I have not seen, thus far, the effects of the second dose.

Dr. Samuel mentioned leucorrheal discharge. I have observed that in the few cases I have had, and as my experience has been limited in radium I do not want to be too optimistic; nevertheless I have been very

well pleased in the hyperplastic form of endometritis with its use. We have all curetted such cases, and, as I have previously remarked, they have done well for a while, and then the bleeding would recur. The use of radium is particularly indicated in this class of cases. Without it there is nothing else but to sacrifice the uterus, and in a young woman we hesitate to do that. I do believe that we have a golden era ahead of us in the use of radium.

**Dr. E. Denegre Martin**, New Orleans: I would like to ask Dr. Samuel as to the indications for radium in carcinoma of the cervix. I think we have a most valuable aid in the use of radium in these inoperable cases. I recall the case of a woman who had a cauliflower growth appearing at the vagina. When she was discharged I had no idea there was anything that would benefit her. This was about eighteen months ago. Radium was used in her case, and since then there has been absolutely no sign of trouble. The growth has disappeared. She has no pain and is able to perform the duties of a housekeeper. She may have a recurrence.

**Dr. E. C. Samuel**, New Orleans (closing): I purposely did not touch on the subject of malignancy, but I must agree with Dr. Phillips in everything he has said in so far as the radium treatment of malignancy is concerned. In one statement, where he brings up the question of the tumor undergoing carcinomatous degeneration, it was one of the things I called especial attention to. There is no absolute evidence that we have at hand to-day wherein a tumor that is not malignant at the start becomes malignant later on. When it does become malignant later you can say that there have been cells that have been existing from the time the tumor just started. That is the opinion of some pathologists, and it is still a debatable question.

If the president will permit, I will try to answer Dr. Martin with reference to the question of malignancy and radium. We have, up to date, over 700 exposures that we have given for malignant disease of the cervix, the vaginal vault and the pelvic organs. There is no question in the world but that radium offers the greatest possible advantage in malignancy of the female genital organs, especially the uterus, that we have at our command to-day. Of course, as radiologists and radium therapeutists we do not say that radium or anything else is to supersede surgery. Surgery comes first. In early cases of malignancy of the uterus within the operable stage they should be treated with radium. It is a surgical condition from the time it is first found, if it has not passed beyond the stage of operative intervention. In cases that come to you far advanced, with a large crater, with a foul discharge, anemic, and practically ready for your signature on the death certificate, radium offers the most wonderful hope that you have to give these patients to-day. We have some cases that have gone on for nearly three years that are remarkably well, but how long they will continue I do not know. In the majority of cases, we have seen them go along for fifteen to eighteen months or two years without evidences of recurrence, but the majority of them show some evidence later on, say at the end of two years or at the end of two and a half years. If you have recurrence after radium therapy, there is nothing in the world that will stop it. Radium is of no value in such cases. It is like putting a match to gasoline—these patients go right straight on and go down. What the explanation of this is nobody knows. These patients come to you, and when you place 75 to 100 milligrams of radium, with proper screening to prevent any effect on the neighboring organ, the patient will tell you that the discharge has

stopped, there is no more odor and she feels that she is well. When you examine her you see the typical appearance on the cervix of the radium application, namely: a thin, whitish film, which you find in these cases, and oftentimes physicians think they are sloughs. They are not sloughs; it is the effect of the radium on the crater-like substance, and they go on, and after you have finished your series of treatments, which last generally from two to three months, they are allowed to rest for six months, when they return for re-examination. The effect is almost phenomenal from radium in the majority of cases. There may be no evidence of the disease left, but they go like that for eighteen months or two years, and in the majority of cases there is recurrence taking place in the vaginal vault or deep in the pelvic structures. If there has been a pan-hysterectomy done it is practically useless to treat them with radium, because it does not do them any good. The majority of them die from urinary complications due to the growth encroaching on the ureters and gradually occluding them, and urinary sepsis is generally the cause of death.

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### **A SIMPLE SURGICAL AFTER-TREATMENT.\***

By E. L. SANDERSON, M. D., Shreveport, La.

A large part of the literature on surgical after-treatment deals with details suited to special cases. I wish to draw some general conclusions applicable to all cases, and suggest a few simple procedures which, theoretically, meet these requirements, and which, in practice, have given very satisfactory results.

To discuss any phase of operative surgery, and especially that pertaining to the time of operation and the days immediately following, one must keep before him, as a background, man's biology.

The patient you are about to operate upon is a wonderful machine, every part of which is automatic and interdependent to such a degree that its achievements are almost Godlike.

To contemplate the vast complexity of actions and the perfect coördination necessary even in the simpler acts of life, you would suppose that many forces were employed.

The wonder of it all is its simplicity. Every act, whether it be the drawing of a breath or the taking of a city, requires only the simple processes of osmosis and chemical reaction.

Environment, which we now recognize as the prime factor in our development, accomplishes her work by interfering with or influencing osmosis and chemical reaction. Continued, like interference or influence produces a change of function and leaves its imprint on the race. But, after all, the one-celled protozoon who takes

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his food by endosmosis from fluid surroundings and excretes by exosmosis through the same membrane, is exactly like ourselves, except that we represent a large collection of such protozoa, become interdependent by long association, and finally, very sensitive to influences suggesting past experiences to themselves or to their progenitors in ages past.

It is this last element that besets the surgeon on every hand; for, be as kind and gentle as you may, your operative procedure still remains very like the onslaught with tooth and claw upon our ancestors in the forests of antiquity.

Here lies the secret of shock: Abdominal distention and its attendant nausea, and of that long train of nervous phenomena so often lasting for months after operative procedures.

The many chapters written about the vasodilators and constrictors, the excitors and inhibitors, and the intricate maze of actions and reactions involved in shock and post-operative neurasthenia, which might well be called chronic shock, may be summed up in the word "fright," or the phrase "recollections of injured posterity."

Throughout our development as a species we have been attacked by our fellows and other species. The attack, especially when unable to defend ourselves, has always meant loss of blood, prostration, great pain and infection. If the abdomen was opened it meant torn viscera; the stomach was emptied to minimize escape of contents. Distention and cessation of peristalsis followed to facilitate adhesions and limit peritonitis.

An aseptic surgical attack arouses these recollections, and the same phenomena are prone to follow. Therefore, we feel justified in stating that one-half of surgical after-treatment should consist in combating the evil effects of man's wonderful power of association of present experiences with the perils that beset his ancestors since the beginning of time.

The remedy is simple and efficient: Protect your patient before and after operation from all influences suggesting danger or pain, as far as possible. Give morphin before operation and continue afterward until the period of severe pain is past—not just enough to cause nausea and wakefulness, but to relieve almost, if not completely. Don't instruct the nurse to give as little as possible, but instead all that is necessary. After forty-eight hours, in ordinary

cases, it may be decreased rapidly and discontinued in a few more hours.

However, if for any reason its effects are allowed to wear off and the patient begins to suffer greatly, don't return to it, or a condition resembling acidosis will develop, which I cannot explain. This very action is the underlying factor that carries near to death's door so many patients who are really in the hands of skillful operators. Morphine is given before operation because the patient takes the anesthetic easier; after operation the nurse is instructed to give a hypo if very necessary. The previous morphine dies out completely, the patient becomes wild with pain; at last morphine is given and all the symptoms of acidosis appear. This one point is of extreme importance.

Yet the rule to fight the use of morphine is so universal that many of us forget that fire has any other purpose than to burn houses. The nurses have to be constantly reminded to not let the patient suffer, else you will come back in the afternoon following the operation and find the nurse doing her best to ease and quiet your patient—holding the morphine back as a last resort.

Of course, it should not be continued longer than necessary; common sense suggests this. I have written less than a dozen prescriptions for morphine to be used by the patient himself since the Harrison law was enacted. I have not had a single operative patient to show the slightest sign that the two or three days' relief from pain had given them any desire whatever to continue to take morphine. And when I say relief I mean complete relief. A sixth or eighth of morphine given following an abdominal section should not thus be wasted on an adult.

Now, there is only one other factor of note in surgical after-treatment; that is osmosis.

The vomiting is due to deranged osmosis either in the stomach, where irritating substances are being secreted or excreted, or in the brain cells, where membranous coverings are not functioning properly, thereby admitting irritating elements to the cells or retaining combustion products that should be expelled by exosmosis. The surgical fever is a disturbance of the osmotic power of the skin or tissue cell coverings which are admitting toxic substances or retaining the products of tissue change. Stoppage of excretion and secretion are simple matters of osmotic disturbance. The absorption from infectious surfaces depends solely on the osmotic action of the cell coverings.

Water is the osmotic fluid of our bodies. Without it life cannot exist. A lack of it makes of our organism a hungry sponge, ready to take into itself any fluid which may be in contact with it, whether it be water or the vilest pus.

The law of osmosis is simple—two liquids, separated by an organic membrane, tend to pass through and mingle. The tendency to flow is from the rare to dense and in the direction of greatest pressure. In health, our osmotic functions are perfectly balanced. A certain dilution of body fluids must be maintained for this balance of function. When this dilution varies from lack of water there is retained in the cells certain substances which act upon the nerve centers and is manifested by thirst. This unquenchable thirst following operation is not a morbid desire, but an eloquent appeal that you reestablish the osmotic equilibrium. The restlessness and sleeplessness are due to the retention in the nerve cells by defective exosmosis of substances which should be excreted.

Absorption of toxins from the bowel or wound surfaces is encouraged by lowered tension in the tissues and increased density of tissue fluids. Secretion and excretion are disturbed, because they are purely osmotic processes.

But the stomach will not retain water, you say, and that is evidence that the thirst is morbid. The stomach rejects it because it has learned in ages past that opening the abdomen meant opened viscera, and that anything taken into the stomach increased the escape of contents. The stomach does not discriminate between your laparotomy and the attack of the wild boar. But they did not drink water per rectum in ancient times, fortunately; therefore you have this unguarded portal through which you may transport the life-saving water to the starving tissues.

Of course, you may think I have not covered the subject because I have not referred to position, drainage, heart stimulants, etc. Drainage and position of patients is a matter of favoring osmosis. And as to strychnin, camphorated oil and digitalis, I have not given either of them in a single case for five years, and, of course, have about forgotten the little I knew of their action.

I have used the term water instead of saline purposely. There is no more reason for drinking saline by rectum than by mouth.

In short, a simple and efficient surgical after-treatment will be found in morphin to control man's inborn tendency to violent reaction to injury, and water to maintain or restore osmotic equilibrium.

## DISCUSSION ON THE PAPER OF DR. SANDERSON.

**Dr. O. W. Cosby, Monroe:** If I am permitted to discuss a paper that I have not heard in its entirety, I will apologize by saying that I knew something of it beforehand. I cannot discuss it in its entirety because it is a new idea. So far as my judgment goes, it is a splendid idea. I want to say that, entirely apart from any infectious trouble, one of the greatest factors in these cases is metabolic derangement; that primarily our first fault is a metabolic derangement. Incidentally infection creeps in, and whereas a few years ago focal infection was the most important thing for consideration, so far as we could see, I believe now that the most important thing in medicine is metabolism. The reason that this man is infected, and that man is not infected, is by reason of his natural resistance, and if we could understand the enigma of metabolism and the surchargization of the system, if I may use that term, with waste products, we will solve the problem of infections and other diseases. We have been taught by a number of men that the body chemistry is the most important thing of all, and that infections are a secondary matter. A patient may die from invasion of the pneumococcus or streptococcus or other kind of coccus. The individual who is infected has previously laid the ground or foundation for it. I believe what Dr. Sanderson has said in regard to water and dilution is the most important factor that there is in connection with metabolism.

**Dr. E. M. Ellis, Crowley:** I think the essayist has laid the ground for considerable thought in the matter of after-treatment in certain cases. I believe, however, from a surgical standpoint, that if a patient is primarily prepared for an operation, the after-treatment does not amount to much. I am a strong believer in having a man's bowel chemistry in the proper state before subjecting him to the terrorizing elements of an operation. I believe that when you have a surgical case that that case should be taken a few days before the time of operation is contemplated and subjected to a thorough preliminary course of treatment; that his alimentary tract should be thoroughly cleansed; that you want to be sure you have no acidosis in that patient before beginning the operation, and that his bowel chemistry is absolutely normal. You want to see that there is no abnormality in the urine, if possible. If the urine is loaded with indican, you want to eliminate that, if possible, before subjecting the patient to a severe operation. After this is done, in the meantime, you will have obtained the thorough confidence of the patient, which, of course, is a very prime factor in surgery, and lead him up to the idea that the operation does not amount to much, and after operation there will be very little suffering. Get rid of the idea of fright and fear of the operation, and you will have accomplished a great deal with your patient.

Then comes the day of the operation. I believe, as the doctor has said in his paper, that a preliminary hypodermic of morphin is very essential. I am in the habit of following Crile's method of giving scopolamin with it unless contraindicated. I know it has been abandoned by most surgeons, but I believe by doing it the patient has no fear whatever of the anesthetic and will take the anesthetic absolutely unconsciously. After the anesthetic is administered—and I believe a combination of gas and ether is the best of all—your patient will come out of the operation with absolutely no shock, especially if you combine a local anesthetic with your general anesthetic after the method of Crile. I believe if you

will adopt that method you can operate on a patient for two hours and he will have very little shock after the operation. It has been my plan, if the operation is at all severe, to subject the patient during the hour of operation to what is known as the axillary stab—that is, I introduce a pint of normal salt solution during the hour of operation, which will take care of the thirst following the operation for twenty-four hours. If the operation is at all severe, in order to combat any acidosis that may appear or lack of fluid in the body, I usually subject the patient to the Murphy drip, with 2 per cent bicarbonate of soda. It takes very little morphin to control the patient after that, and you do not find that the pulse goes up much. There is very little reaction from the operation, and I have had no occasion to give a heart stimulant for two years in surgical shock.

**Dr. E. Denegre Martin**, New Orleans: So far as the after-treatment is concerned, Dr. Sanderson gave the gist of it in the last two lines of his paper, only it took him a long time to come to that conclusion.

In the past there has been a great lack of preliminary preparation of these cases for operation. They are taken right off the street in some instances and operated the same day, and I believe many of the unfavorable results are due to the fact that the surgeons did not have an opportunity in preparing them for operation. Again, I am convinced that we have been over-preparing our patients, and for years we have been over-treating them after operation. The old method of purging patients the third day after operation is the most damnable practice ever instituted, and some surgeons are still doing it. My personal experience is this: to give a patient a purgative a night or two before operation. I operated on a patient a few days ago; that patient had no purgative, and did not have a particle of trouble. A purgative given the night before operation upsets the patient, and I believe the nausea and after-trouble are due to that fact. I am convinced that it is the heart stimulant and treatment, and especially the liquids we give by stomach, such as orangeade and lemonade, that upset these patients. If you operate on them with instruments and not with fingers, and not get them upset before you start, and give morphin to control pain after the Murphy drip, and let them alone, the bowels will act normaly and you will have no complications.

**Dr. E. L. Sanderson**, Shreveport (closing): I wish to thank the gentlemen for their very kind remarks in discussing my paper. While my paper did not cover many points, in giving it the name, "A Simple Surgical After-Treatment," I meant to present that one thought—to control the associated ideas, associating with present injury something that happened to the ancestors. That is half of it, and the other half is to keep the fluids so diluted that the equilibrium will remain as it was before and the osmosis not interfered with.

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## THE FUNCTION OF THE GALL-BLADDER. AN EXPERIMENTAL STUDY.\*

By F. C. MANN, M. D., Rochester, Minn.

A few years ago, at the suggestion of Dr. E. S. Judd, and in collaboration with him, I removed the gall-bladder from various species of animals and studied the effect of such procedure on the remaining portion of the biliary tract. Certain definite facts were ascertained by this study.<sup>8, 9</sup> I shall now make a preliminary report of other researches on the problems suggested by the former investigation. The purpose of this work has been to obtain some facts in regard to the functional significance of the gall-bladder.

The anatomic region occupied by the biliary tract is one of the most important in the body, from the physiologic, and especially from the pathologic point of view. A large percentage of operations on man have for their purpose a correction of pathologic conditions found in this area, and for this reason any increase in our knowledge of the function of the gall-bladder is of value.

There are very few structures in comparative anatomy which show a wider range of variation than are shown by the different component parts of the biliary tract from each other. The exact anatomic arrangement in one species is rarely duplicated in another species. The gall-bladder may or may not be present. This anatomic difference is observed even in very closely related species. In some species two ducts may be present. In one species, small hepatic ducts enter the gall-bladder directly. In at least one species the gall-bladder is present in some individual animals and absent in others. The formation of the common duct is rarely the same in different species. The cause or significance of these marked variations in the comparative anatomy of the biliary tract never has been determined.<sup>7</sup> The problem has not been solved by embryologic studies.<sup>18</sup>

Many theories concerning the function of the gall-bladder have been developed, varying in the functional importance which they attach to the gall-bladder from the one which implies that the organ is perfectly useless<sup>17</sup> to that which attributes to it the production of something necessary for the well-being of the organism. In general, each theory may be grouped into one of three divisions: (1) The gall-bladder may functionate as a reservoir for the storage of

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bile, (2) as a secretory organ, elaborating and adding something which is of importance either to the general body economy or to the mechanism of bile expulsion or its chemical action, and (3) as a regulator to the flow of bile.

The positive statements which may be made in regard to the function of the gall-bladder are very meager. It is known that the small amount of smooth muscle contained in its walls is under the usual double nervous control observed in the other viscera. It receives fibers from both the vagus and sympathetic nerves. The splanchnic nerve seems to be predominantly inhibitory in action, while the vagus is mainly motor.<sup>2, 11</sup> The gall-bladder undergoes rhythmic contractions which increase during the height of digestion.<sup>16</sup> These contractions usually exert but slight pressure within the viscus, although they are capable of exerting considerable pressure when the walls are thrown into a spasmodic contraction. The bile which has entered the gall-bladder differs from that which comes directly from the liver.<sup>17</sup> This difference, however, is mainly, and may be wholly, due to the increased mucous content which the mucosa of the gall-bladder adds to it.

The results of our own experiments and of those of other investigators prove<sup>4</sup> that usually all the ducts outside the liver dilate after the removal of the gall-bladder. This is the most conclusive proof obtained, showing that at least in some of certain species the gall-bladder has a definite function. These results probably give the clew to the major function of the gall-bladder, because an explanation of one will include the other.

We have attempted to determine the practical significance of the gall-bladder by a comparative study. If the gall-bladder is of any functional importance, it is reasonable to suppose that animals which do not possess the organ must have developed some means of compensation for the lack of it. This study includes the obtaining of critical data concerning the biliary tract in species of animals with, and other species without, a gall-bladder, together with an attempt to compare and correlate these data, assuming that one or more points of difference might be found between the two groups of animals which would add to our knowledge concerning the function of the gall-bladder. While some comparative work has been done on these structures, it consists, for the most part, of a study of the grosser relationships. As our study involves many different investigations, only brief, general deductions can be made at present. We have attempted to collate the data from the comparative standpoint

and in relation to the three possible functions of the gall-bladder. One of the most striking things noted in a review of our material is the marked individual variation in the anatomy of the biliary tract and, in a lesser degree, the same is true of the physiologic reactions studied. These variations make it difficult to draw conclusions.

While we are securing data in regard to the biliary tract of all the common laboratory and domestic animals, only that will be presented which concerns comparable species, some of which do not possess a gall-bladder.

Dilation of all the extra-hepatic ducts following the removal of the gall-bladder does not take place if all the muscle-fibers are dissected free from the intramural portion of the duct.<sup>9</sup> From these results great importance is attached to the interrelation of the action of the gall-bladder and the sphincter of Oddi. Accordingly, it was anticipated that either an anatomic or physiologic difference would be found in regard to the sphincter in animals with a gall-bladder as compared with those which do not possess one. The sphincter of Oddi has been studied anatomically and physiologically. This sphincter had been studied anatomically by Oddi<sup>15</sup> and by Hendrickson.<sup>5</sup> Archibald<sup>1</sup> seems to have been the only investigator of its physiologic action. Species which do not possess a gall-bladder were not included in the series studied by any of these investigators.

The material for the anatomic study of the sphincter was secured immediately after death and fixed in formalin. The specimen was trimmed to the smallest size which would give the complete course of the duct and paraffin serial sections made.

A histologic study of the sphincter was made in the following species of animals which have a gall-bladder: Guinea-pigs, rabbit, cat, dog, goat, ox and striped gopher (*C. tridecemlineatus*). A comparative study of the sphincter in the deer, horse, pocket gopher (*G. bursarius*) and rat, species which do not possess a gall-bladder, was also made.

In each species the bile-duct was found to be surrounded by definite bundles of smooth muscle, contraction of which closed the lumen of the duct. The amount of muscle tissue and the arrangement of it differed slightly in the various species, depending probably on the difference in the thickness of the wall of the duodenum and the course of the duct. However, no constant difference was observed in the histology of the sphincter in animals with a gall-bladder as compared to those not having this organ. It was not

possible to make any specific anatomic differentiation in the sphincter of Oddi in the two groups of animals.

The physiologic data consist of the estimation of the tone of the sphincter in anesthetized animals. The animal was lightly etherized and a cannula was placed in the common bile-duct, with its point directed towards the duodenum. To this cannula was attached an upright glass tube having an internal diameter of about 2.5 m. m. and being about 30 c. m. in length. An aqueous eosin solution, having a specific gravity but slightly greater than distilled water, was allowed to run slowly into this tube until the pressure was great enough to force some of the solution into the duodenum. The length of the column of water after the fluid became stationary, expressed in millimeters, was taken as a measure of the tone of the sphincter.

It is obvious that this is not absolutely the correct measure of the tone of the sphincter, as other factors, such as friction, especially in animals possessing a very small duct, and anesthesia, etc., complicate the results. However, control experiments, in which the tone of the sphincter was decreased or abolished by deep etherization, bleeding or formalin injections, proved that this method was fairly correct.

The pressure withstood by the sphincter was measured in the following species of animals which have gall-bladders, namely: the cat, dog, goat, rabbit, guinea-pig and striped gopher.

The pressure was found to vary considerably in the different species and the different animals, making it difficult to draw conclusions. However, the data show that, under light ether anesthesia, the tone of the sphincter in each species of animal possessing a gall-bladder which was tested, except the guinea-pig, would withstand a pressure of 100 m. m. of water. Sometimes the pressure withstood was much greater, and very rarely slightly less than 100 m. m.

In the guinea-pig the pressure withstood was rarely over 75 m. m., and frequently considerably lower. This was partially due to the trauma incident to the technical difficulties encountered in inserting the cannula.

The pocket gopher and rat were the only species obtainable without a gall-bladder which were suitable for the investigation of the tone of the sphincter. The results of a large number of experiments are the same; in no instance was any pressure or, at most, only a very slight, usually not over 30 m. m., maintained by the sphincter. In most cases all the fluid would pass into the duodenum. This would seem to show that the sphincter is not physiologically active

in species of animals without a gall-bladder, or, at least, not active to the same degree as in species possessing a gall-bladder.

The anatomic variations in the dimensions of the common bile-duct has been considered as a possible means whereby an animal without a gall-bladder compensates for the lack of it. Data have been obtained in regard to both the diameter and length of the common duct in animals with and without a gall-bladder. The data secured, which is not yet completed, are quite variable, and it is obvious that it is difficult to make comparisons. However, after considering the variations both as regards the animal and the species, the results do not seem to warrant the belief that there is any relation between the dimensions of the common duct and the presence or absence of the gall-bladder.

The comparison of a few species illustrates this point. The horse, which does not possess a gall-bladder, has a relatively short duct with a large diameter, while the ox, which possesses a gall-bladder, has a duct of very nearly the same dimensions. The same is true in comparing the deer and goat. However, the rat and pocket gopher, both being species without a gall-bladder, have both comparatively and usually actually longer ducts, with a narrower lumen, as compared with such species as the guinea-pig, rabbit and striped gopher, all of which possess a gall-bladder (Table 2).

A comparison of the thickness of the walls of the common bile-duct in the species of animals compared herein does, however, reveal a difference. In general, the walls of the ducts in species of animals which do not possess a gall-bladder are thicker and contain more muscle than the duct walls of those species having a gall-bladder (Figs. 7, 8 and 9).

One of the points at which the biliary tract differs greatly in various species is the distance from the pylorus at which the common bile-duct enters the duodenum. As there might be a relationship between bile escapes and acid escape into the intestine with regard to alkali control in the duodenum, some comparative data upon this point were obtained. However, no differentiation between groups of animals having a gall-bladder and those without one can be made in this regard. Examples are cited as follows: The common duct of the horse, which does not have a gall-bladder, enters the duodenum between 10 to 20 centimeters from the pylorus, while that of the ox, which has a gall-bladder, enters between 50 and 70 c. m. from the pylorus. On the other hand, the duct enters the duodenum about 0.5 to 1.5 c. m. from the pylorus in the rabbit and

0.4 to 0.8 in the guinea-pig, both of which have a gall-bladder, and 1.5 to 2.5 c. m. in the rat and 4 to 5 c. m. in the pocket gopher, both species of which do not possess a gall-bladder (Table 2).

The same is true in regard to the relationship of the pancreatic duct to the common bile-duct. This relationship varies greatly in the different species of animals, but there is no constant difference in this respect in species possessing a gall-bladder as compared with those without one.

The secretory pressure of the liver has been investigated by several observers,<sup>6, 14</sup> but it appears never to have been measured in species of animals without a gall-bladder. The method employed by us consisted in placing a cannula in the common duct of an etherized animal; an upright glass tube was then attached to this cannula and the lower end of the tube was placed in approximately the same plane as passed through the center of the liver. The height to which the bile rose in this tube, expressed in millimeters, was taken as the secretory pressure of the liver. Our results show that there is no difference in the secretory pressure of the liver in animals with a gall-bladder from that of those without one (Table 3). Any one who has measured the pressure in the common bile-duct appreciates the great influence of respiration on intra-duct pressure. This has formed the basis for one of the recent theories of the function of the gall-bladder.<sup>19</sup> A comparison of animals using the diaphragm to a great extent, however, does not reveal a difference such as to show whether or not they have a gall-bladder. It is impossible to compare the horse and deer with the rat and pocket gopher in regard to their life activities, excepting by contrast. On the other hand, several species, as the dog and rabbit, compare quite closely to the horse and deer so far as the need for a powerful diaphragm is concerned.

Many observers have stated that the gall-bladder could not functionate as a reservoir. Dr. W. J. Mayo<sup>12</sup> gives two reasons for this—first, that the relative capacity of the gall-bladder to the amount of bile secreted is too small, being about 1 to 40 or 50 in man; and, second, the propulsive power of the gall-bladder is not sufficient to empty it quickly. We obtained some comparative data on this point by measuring the rate of bile flow for about two hours in different species, after obtaining the capacity in relation to the rate of flow.

The method consisted in etherizing an animal, placing a cannula in the common duct and measuring the amount of bile secreted for

a definite length of time. After the collection of bile was taken the gall-bladder was removed and its capacity, when it was completely filled, not distended, was measured. Naturally, the rate of bile flow was complicated by the anesthetic, as was shown by the fact that usually the amount of bile collected during the first half-hour period was the greater, but this was the only practical method to employ in small animals like the guinea-pig, the rat, etc., and the results, while individual variations are very great, are certainly comparable. The readings, however, are probably much too low in each instance.

In general, our results show that in each species of animals tested the gall-bladder could hold less than the amount of bile secreted in one-half hour, even when the animal is etherized (Table 4).

The bile which has entered the gall-bladder normally has a much higher content of solids than the bile which comes directly from the liver. This is shown by a comparison of the specific gravity of the two fluids. In the few instances in which this has been done, the specific gravity of the bile contained in the gall-bladder was much greater than that of the bile collected directly from the liver.

Another structure in the biliary tract, the function of which is unknown, is the system of folds of mucosa called the valves of Heister.<sup>3</sup> Logically they would be considered as mechanically adapted to prevent the bile from entering the gall-bladder. We have measured the resistance which they offer and found that it never exceeded 30 m. m. of water in the individual animals studied.

It should be emphasized that the gall-bladder, in so far as it is possible to determine, is not essential to the maintenance of health. Human beings have lived for many years in perfect health after its removal.<sup>10</sup> One of our dogs lived for three and a half years after removal of the gall-bladder and was always in excellent condition. We cannot say whether or not there are changes in the gastric and pancreatic secretions, as Rost asserts, because our experiments up to the present time on this point are too few from which to draw conclusions. The results of our comparative studies which, it must be emphasized, have not yet been completed, allow the following tentative statement to be made:

#### NEGATIVE FINDINGS.

1. There is no specific demonstrable difference in the anatomy of the sphincter of Oddi in species of animals with a gall-bladder as compared to those without one.

2. The adhesions of the biliary tract are no different in species of animals without a gall-bladder, when considered as a group, from those species possessing a gall-bladder.

3. No differentiation between groups of animals having a gall-bladder and those without one can be made in regard to (*a*) the relationship of the pylorus to the point of entrance of the common bile-duct and (*b*) the relationship of the pancreatic duct to the common bile-duct.

4. There is no special difference in the secretory pressure of the liver in species of animals with a gall-bladder as compared to those without one.

#### POSITIVE FINDINGS.

While the following statements are substantiated by the data obtained, it is emphasized that the species of animals without a gall-bladder studied, so far, are few.

1. The sphincter of Oddi appears to be more or less physiologically inactive in species of animals without a gall-bladder.

2. The walls of the common bile-duct seem to be relatively thicker in species of animals without a gall-bladder as compared to those possessing this origin.

The results of these studies show that there are some facts which support two of the major theories concerning the function of the gall-bladder. A consideration of the full functional significance of the gall-bladder must include the recognition that (*a*) it does add something to the bile, and (*b*) it does influence the flow of bile.

Probably in no species of animal is the gall-bladder capable of holding more than 5 per cent of the total amount of bile secreted in twenty-four hours, and in most cases it may contain little more than 1 per cent. It is, therefore, impossible for the gall-bladder to functionate as a true reservoir in the same sense that the urinary bladder does.

There is no doubt that the mucosa of the gall-bladder adds something to the bile. The character of the secretion and its functional significance has been contradicted by other investigators, and our own data are too few at present to draw conclusions. It may be that this secretion aids the action of bile or has other functions, but the only definitely known addition the gall-bladder makes to the bile is mucus.

The functional significance of the gall-bladder seems to be intimately connected with the fact that it is mechanically adapted to change the escape of bile into the intestine from a more or less continuous flow into an intermittent one. Studies on animals, practically always dogs, with biliary fistula, show that the liver secretes bile continuously, although the rate varies considerably. In most instances, however, in which duodenal fistulas have been formed, the escape of bile into the intestine has been intermittent. No studies seem to have been made on animals without a gall-bladder in regard to the flow of bile into the intestine, but it seems that, in all probability, it would be continuous with liver secretion. We have observed this in the rat and pocket gopher, but the experiments were complicated by the necessary anesthetic. Under such experimental conditions, the entrance of bile into the intestine in these two species was continuous, except for the slight changes produced by respiration. The fact that the sphincter seems to be inactive in species without a gall-bladder would imply that this was quite the normal condition. A study of some species of animal without a gall-bladder, in which it is possible to make a permanent duodenal fistula, will be necessary to definitely prove this point.

The action of the gall-bladder seems to be as follows: The liver secretes bile more or less continuously. Under normal conditions this is secreted under very low pressure. The sphincter at the opening of the common bile-duct is normally under tone, which is great enough to increase the intra-duct pressure above the resistance offered to the entrance of bile into the gall-bladder. At intervals the sphincter relaxes, allowing bile to flow into the intestine. The mechanism controlling the action of the sphincter is not known, but is reported to be under nervous control.<sup>13</sup> The gall-bladder not only acts as an expansile chamber for the accommodation of the difference in rate of bile secretion and bile discharge, but it also prevents some of the fluctuations in intra-duct pressure which would occur during respiration in all instances in which the duodenal sphincter is active. It should be appreciated that in all species in which the sphincter is constantly active some mechanism like the gall-bladder is necessary.

A description of the action of the gall-bladder does not explain its function. Why it should be desirable in some species of animals to allow the bile to enter the duodenum at the same rate as the liver secretion, and in other species, closely related and having practically

the same physiologic environment, to have developed a mechanism whereby it pours intermittently into the intestine, is not clear. More investigation will be necessary to eliminate this question. These future researches should include (1) a study of the sphincter in larger series of animals without a gall-bladder and (2) a determination of the mechanism controlling the sphincter in species of animals with a gall-bladder.

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TABLE 1.

This table shows the great variation in the dimensions of the different component parts of the biliary tract in different species and individuals.

A. Showing the average of the dimensions in various species.

	Weight.	Diameter common duct.	Length common duct.	Diameter cystic duct.	Length cystic duct.	Capacity Gall-bladder.	Distance pylorus to opening of common duct.
Dogs—Average weights and measurements of 29 animals. . . . .	Kg. 8	mm. 2.9	mm. 57.6	mm. 2.2	mm. 18.6	cc. 16.6	mm. 38
Monkeys—Average weights and measurements of 14 animals. . . . .	Gm. 1722	3	23.5	2.2	12.2	2.3	20
Rabbits—Average weights and measurements of 30 animals. . . . .	Gm. 1752	2.2	35	1.4	18.7	1.6	7.3
Guinea-pigs—Average weights and measurements of 16 animals. . . . .	Gm. 437	1.8	12.6	1.1	11.2	.8	5.6

TABLE 2.

This table shows the comparative length and diameter of the common duct in adults of species with a gall-bladder (ex. rabbit and guinea-pig) and species without a gall-bladder (horse, rat, pocket gopher). Note that the dimensions of the common duct vary in different species, regardless of whether a gall-bladder is present or not.

Species.	Length of Common Duct.	Diameter of Common Duct.	Distance of pylorus to point of entrance of common duct into duodenum.
Ox. . . . .	4-7 cm.	7-8 mm.	50-70 cm.
Rabbit . . . . .	2-5 cm.	1.5-3.5 mm.	0.5-1.5 cm.
Guinea-pig. . . . .	1-2 cm.	1.5-2.5 mm.	0.4-08 cm.
Horse. . . . .	4-6 cm.	10-20 mm.	10-20 cm.
Rat. . . . .	2-3 cm.	0.6-1.0 mm.	1.5-2.5 cm.
Pocket gopher . . . . .	6-7 cm.	0.6-1.0 mm.	4-5 cm.

TABLE 3.

Table showing the maximum secretory pressure of the liver in three species of animals, one of which does not possess a gall-bladder (rat).

No.	RABBIT.		GUINEA-PIG.		RAT.	
	Wt.	Secretory Pressure.	Wt.	Secretory Pressure.	Wt.	Secretory Pressure.
1. . . . .	2000	308	775	200	190	225
2. . . . .	2275	245	707	210	160	200
3. . . . .	2155	250	755	218	180	215
4. . . . .	1765	240	480	190	190	225
5. . . . .	2440	225	540	195	165	230
	2127	253.6	651.5	202.6	177	219

TABLE 4.

This table shows the relationship between rate of bile-flow and capacity of the gall-bladder in two species. The collections of bile were made while the animal was under anesthetic and the rate of bile secretion probably much decreased. Even under these conditions the gall-bladder never had a capacity for more than 2 per cent of the amount of bile secreted in twenty-four hours.

Animal.	Weight.	Length of time bile was collected.	Amount of bile collected.	Estimated amount of bile secreted in 24 hours.	Capacity of gall-bladder.	Percentage of bile secreted in 24 hours which the gall-bladder will hold.	Weight of liver
Rabbit.....	2440	2 hrs.	10.0	120.0	2.4	2.0	75
Rabbit.....	2275	2 hrs.	12.8	153.6	2.0	2.0	75
Rabbit.....	2155	2 hrs.	16.6	199.2	2.0	1.0	95
Rabbit.....	1765	2 hrs.	9.0	108.0	1.4	1.3	65
Average.....	2158.8			122.7	1.95	1.4	71.25
Guinea-pig.....	707	2 hrs.	5.0	60.0	0.8	1.3	32
Guinea-pig.....	560	2 hrs.	6.5	78.0	0.8	1.0	40
Guinea-pig.....	652	2 hrs.	8.5	102.0	1.2	1.0	32
Guinea-pig.....	390	2 hrs.	4.4	52.8	0.6	1.1	20
Average.....	561.8			73.2	8.85	1.1	31

TABLE 1—Continued.

B. Showing individual weights and measurements of five animals of each species selected from the preceding subdivision "A" on account of their being the nearest in size in each group.

	Sex.	Condition.	Weight, kg.	Diameter common duct, mm.	Length common duct, mm.	Diameter cystic duct, mm.	Length cystic duct, mm.	Capacity gall-bladder, cc.	Pylorus to opening c. d., cm.	Weight of liver, gm.
Dogs.	M	Thin.....	14	3	57	2.5	27	20	43	420
	M	Thin.....	13.2	2.5	70	2	22	17	55	440
	F	Good.....	9.8	3	57	2.5	15	9	42	340
	F	Good.....	9.1	3	60	2	17	14	45	470
	M	Good.....	8.1	2.5	65	2	11	12	40	350
		Average.....	10.8	2.8	61.8	2.2	18.4	14.4	45	404
Monkeys.			Gm.							
	F	Thin.....	2050	3.5	26	3	18	2	20	95
	F	Thin.....	2040	3	37	2.5	14	2.6	25	80
	F	Thin.....	1890	3	16	3	11	1.5	21	80
	F	Thin.....	1650	3	35	2	12	3	10	70
	F	Thin.....	1575	3	28	2	8	4	24	50
		Average.....	1841	3.1	28.4	2.5	12.6	2.6	20	71
Rabbits.			Gm.							
	M	Good.....	2385	2.5	37	1.5	25	3.6	8	83
	F	Good.....	2335	2	47	1.5	21	2.2	10	85
	F	Good.....	2280	2.5	40	2	16	3.2	6	105
	M	Good.....	2275	2	40	1.5	12	2	8	60
	M	Good.....	2150	2.5	45	2	24	2.5	6	110
		Average.....	2705	2.3	41.8	1.7	19.6	2.7	8	88.6
Guinea-pigs.			Gm.							
	M	Good.....	775	2.5	15	1.5	12	1.2	8	44
	M	Good.....	755	2	20	1	11	1	6	33
	M	Good.....	707	2	20	1.5	10	.8	6	32
	M	Good.....	652	2	18	1	10	1.2	5	32
	M	Good.....	560	2	12	1.5	12	.8	5	40
		Average.....	689.8	2.1	17	1.3	11	1	6	36.2

## DISCUSSION ON THE PAPER OF DR. MANN.

**Dr. William H. Harris**, New Orleans: I would like to ask Dr. Mann if the question of supply and demand in the incidence of physiology plays some part in herbivora or carnivora, and whether they have a gall-bladder or not? Also, whether the question of a constant feeder or intermittent feeder there has any relationship to the presence of the gall-bladder or to the actions of the gall-bladder?

**Dr. F. C. Mann**, Rochester, Minn. (closing): In answer to the question of Dr. Harris, it is not absolutely true, but in general all carnivora, both animals and birds, possess a gall-bladder, and that species of animals which do not possess a gall-bladder mainly belong to the herbivora group. There are a few species that I do not recall at present, namely: carnivora, which do not have a gall-bladder, but in general it is true.

In regard to constant and intermittent feeders, there is no definite differentiation between the two. It may be that if we could trace each species back far enough, we would find that intermittent feeders do not possess gall-bladders. However, I am not able to state definitely in regard to that, but just in reviewing them as species we cannot differentiate them now.

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## IMPORTANT FACTORS RELATIVE TO TUBERCULOSIS IN ARMY AND CIVIL PRACTICE.\*

By WALLACE J. DUREL, M. D., New Orleans, La.

In order to arrive at some definite conclusion in the prevention, diagnosis and treatment of pulmonary tuberculosis it is of primary importance to remember that the stage and course of the disease depends upon the relation between the virulency of the invading tubercle bacilli and the resistance of the body's humoral and cellular tissues.

The efficacy of the body's resistant forces in the phagocytic and antibody action of the leucocytes will prove the decisive factor in the outcome of a tuberculous infection; in limiting the disease to small areas of infiltration, exudation and tubercles, or in permitting a greater involvement of lung areas, with rapid disintegration and cavitation.

The individual with a low tissue resistance will show more confluent lesions and rapid disintegration, with marked constitutional disturbance, if the invading tubercle bacilli are of a virulent type, while one with a good tissue resistance will show benign lesions, not tending to activity and disintegration, if the invading tubercle bacilli are of a lesser virulent type.

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

Variations between these two conditions of infection will account for the different courses of the disease manifested by localized foci, with no clinical symptoms (inactive tuberculosis) or by more disseminated lesions with evident clinical symptoms (active tuberculosis).

This leads us to the prevention of tuberculosis by the strict adherence and enforcement of our sanitary laws and by the education of our people as to a proper "mode of living" in order to prevent infection from man to man and to increase the individual's resistance to suppress the multiplication of the tubercle bacilli.

The individual who can live a proper anti-tuberculosis life, in the right environment, runs very little chances of ever developing tuberculosis. In civil life this is a hard task with many, but in army life it becomes almost impracticable, with the underground method of the present warfare.

Thus, depending upon the tissues', local and general, resistance, we find tuberculous exudates, infiltrations and tubercles localized in the peri-bronchial and bronchial glands, or extending into the bronchial tree, or still further extending into the bronchioles and alveolar surface of the lungs.

These limited and more extensive lesions may remain *statu quo* for years, without revealing the least sign of activity or disintegration.

Still, after many years, and in a great number of cases after having been thus encapsulated since early childhood, inactive tuberculosis, following a defective "mode of living," bad environment, disease, dissipation, overwork, worry, etc., flares up into the most active forms of the disease—pneumonic phthisis and miliary tuberculosis.

The opinion of many phthisiologists, "that tuberculosis is a disease, in a great number of cases, contracted during childhood," has been repeatedly corroborated by numerous observers from our best tuberculosis clinics.

That tubercles, caseous and calcareous, quiescent and not healed, may remain encapsulated for many years in the lung without revealing any constitutional symptoms of disease, though showing evidence of their presence in the lung by physical and X-ray findings and the tuberculin tests, we know to be an established fact. And we further know that there are no measures by which we can positively assert that such lesions will remain indefinitely encap-

sulated in this inactive state and will not finally impair the individual's health.

Inactive foci may become active at any period of a man's life, and death will often be the final ending of what was thought to be an inert condition. Therefore, it is the opinion of most phthisiologists that tuberculous individuals should be more cautious in their "mode of living" and should not be subjected to the exposure and hardships of a strenuous civil or army life. Such individuals should not be forced into a very active military service.

In making a diagnosis of pulmonary tuberculosis it is not sufficient to locate the presence and extent of lesions, but we must first determine the tuberculous nature of these lesions, especially relative to their "activity" or "latency."

The diagnosis of incipient or advanced tuberculosis cannot be made upon the physical lung-findings alone. Any one claiming to do this is a medical phenomenon. The presence of râles alone is not the sole criterion of the presence of tuberculosis or of active lesions. Therefore, we are better able to arrive at some conclusion in the diagnosis of pulmonary tuberculosis by obtaining a chain evidence of the following factors:

1. The physical findings.
2. The family, personal and clinical histories.
3. The sputum findings.
4. If tubercle bacilli are not found in the sputum, positive tuberculin tests and X-ray findings will be valuable corroborative factors.

Always inquire into the family history as to direct and constant exposure to infection; into the personal history as to dissipation, overwork, infectious diseases, environment, habits, etc. Into the clinical history as to:

1. Range of temperature ( $97^{\circ}$  F. to  $99.6^{\circ}$  F or  $100^{\circ}$  F.) determined by a two-hour temperature record of at least five days.
2. Acceleration and instability of the pulse—92 to 120.
3. Disturbed digestion and loss of weight.
4. *Mâlaise* and languor, with aching and lassitude.
5. Cough and hemoptysis.
6. Low blood pressure.

Activity of the disease is chiefly determined by the above factors.

As for the physical lung-findings: Lack of expansion of the upper lobe of the lung, slight dullness or tympany, increase of voice sounds, feeble breathing, harsh and granular breathing, rumbling and prolonged expiration; dry, whistling, localized râles, etc., may

only indicate a "quiescent," partly fibrous and inactive lesion, but when associated with the above-mentioned clinical symptoms they can well be interpreted as indicating "active" tuberculosis.

This is especially true if the subcutaneous tuberculin test causes a positive constitutional and focal lung reaction, and if the X-ray shows any feathering extending well into the cortex of the lung.

The tuberculous nature of a lung lesion cannot be disclosed by even the closest and most careful lung examination alone. The physical findings detected by a percussion and auscultation may be caused by an absolutely non-tuberculous lesion. No physical lung-findings, including moist râles, are a specific indication of "active" tuberculosis.

If the sputum is negative—a fact which does not exclude tuberculosis even after repeated examinations of twenty-four-hours specimens—it is essential to have such corroborative evidence as the tuberculin tests and the X-ray before a positive diagnosis of tuberculosis can be made. The X-ray will give the location and the topographical distribution of the lesions, also the degree of infiltration and calcification of the tuberculous foci. However, it is impossible to determine by plate and skiagraphic readings the tuberculous nature of the lesions, and especially whether they are "active" or "latent."

The "positive" tuberculin skin tests will show whether the subject harbors in his body any tuberculous foci. It does not, however, express the "activity" of the infection.

The "positive" subcutaneous tuberculin test will denote whether the tuberculin antigen and antibodies are easily accessible to the tuberculous foci—*i. e.*, to lesions not properly walled in by a sufficient protective barrier of fibrous tissue.

A "focal" lung reaction, accompanying the "positive" constitutional tuberculin reaction, gives a fairly good evidence of the "activity" of the disease.

A twice or thrice "negative" tuberculin skin test gives absolute proof of the complete absence of any tuberculous foci, whether "active" or "latent," excepting in subjects suffering with some acute toxemia or infection, as measles, etc., or with far-advanced or miliary tuberculosis and pneumonic phthisis.

The few who contend that 10 per cent of the cases admitted in tuberculosis sanatoria are non-tuberculous because the examiner, in the absence of moist râles, has exaggerated the importance of the harsh and granular breathing and prolonged expiration found in

the upper lobe of the lung, do not realize that it might be better understood to mean a lack of application of the proper methods in the diagnosis of pulmonary tuberculosis. Certainly we should not conclude our diagnosis upon the above physical findings alone, but we should, however, never overlook their significance. This seems more plausible, as shown by the reports of tuberculosis sanatoria, stating that 70 to 85 per cent of cases referred to such institutions are in the advanced stages of the disease.

It is far better, after all, to admit a few borderline cases without râles and extensive consolidation—*i. e.*, those giving physical findings which are recognized by the highest authorities on the subject as that of incipient tuberculosis—than to run chances of the few cases becoming advanced. By so doing, we do not injure any one, but will reduce the morbidity of tuberculosis in our State and nation.

If we have the high prevalence and mortality of tuberculosis it is because, unfortunately, we overlook these “signs” of incipency and often wait too long for the appearance of the more advanced physical findings: moist râles and tubercle bacilli in the sputum. The same applies to tuberculosis in civil life as to tuberculosis in army life. The man wearing a uniform is no less susceptible to tuberculosis than a civilian.

If we are not careful, and we send to the trenches men with definite lesions of incipient tuberculosis (lesions without moist râles, but corroborated by clinical, X-ray or tuberculin findings) it will mean disaster and countless expense to our national and civil governments. What greater injustice can we do to our young men than to send “in line of duty” a tuberculous individual who, with all chances against him, is inevitably doomed to succumb to the strenuous life and exposure of the damp and muddy life of trench and underground warfare? Reports from abroad show that strong and healthy men return from such exposure and environment depleted and exhausted. What, then, can we expect of the poor tuberculous soldier, coming from this dungeon, breeding the very essentials for the making of the consumptive? Let us be very careful in our examinations for the detection of tuberculosis in our army.

There is no rule by which we can say that one with an apparently “healed” lesion is fit for service in our present army. Nothing tells us when such an individual will fail in health and become a menace and a charge to our government.

Tuberculous lesions are not “healed” as long as they encapsulate caseous material containing tubercle bacilli. Only lesions “healed”

by complete fibrosis, with no caseation, can we consider well and cured.

In my opinion, most cases of far-advanced tuberculosis and of pneumonic and miliary phthisis are nothing more than an acute exacerbation and extension of long-standing and apparently "healed" foci.

Are we going to run the chances of having our young men develop the more rapid forms of the disease by sending them to a bad environment and dangerous "mode of living"? Oh, no! There are enough healthy and non-tuberculous men in our great United States, who are better able to stand the physical exertions and privations of trench warfare and who can better fill all the ranks in both civil and army exigencies.

In civil practice we must pay more attention to our younger and growing generation, to our working, factory and tenement population, and, in fact, to all classes, thus educating them to a proper anti-tuberculosis "mode of living," and also providing them with sanitary factory, shops, school houses, dwelling houses, better food and rest hours, farms and open-air life, etc., all these factors tending toward the suppression of infection by the tubercle bacilli and the increase of the body's immunity against the virulency of the tubercle bacilli.

What are we to do with the "latent" and "active" tuberculous? Should they both be treated alike? No! The "inactive" or "latent" tuberculous can safely keep his usual work or occupation, and need not be restricted to any severe or sacrificial home or sanatorium treatment. However, he must be made to fully realize that he is not a sound man and that he will fail in health if he attempts to follow the career of one who is absolutely free from any tuberculous focus or infection. He must be instructed to carry out a proper anti-tuberculous life by modifying his way of living and by correcting his faulty habits, by insisting upon an open-air life in a favorable environment, by taking a well-regulated and balanced diet, by carefully avoiding excessive exercise and exertion, and by observing certain periods of rest. "Early to bed" should be his motto. Any secondary disease condition should be corrected, and, with the above, will be found sufficient, in the majority of such cases, to completely eradicate the "latent" tuberculosis and thus prevent further "activity" of the disease.

Let us bear in mind that the "latent" or "inactive" tuberculous is not a sound man, though he does not show symptoms of disease.

The "active" tuberculous, contrary to the "latent," requires very aggressive methods of treatment, such as absolute rest in bed, careful dieting, abundant open-air life, and such accessories as creosote, iodine, tuberculin, artificial pneumothorax, etc. He cannot work and follow his usual occupation, but he must submit to a strict and disciplinary form of treatment, at home or in a sanatorium.

I will ask this question: If what we said is true of the "active" and "latent" case of tuberculosis in civil life, is it not the same with the individual in army life? Both are susceptible to the same favorable and unfavorable environment and "mode" of living, according to their station and the exigencies of duty and necessities of life.

I cannot feel that the "latent" tuberculous soldier is fit for line of duty. He can, however, be well utilized in the army in some capacity where he will not be exposed to the hardships and fatigue of the strenuous army life. This way he will not become a charge to himself, the government or the public.

The "active" incipient tuberculous, without râles and tubercle bacilli in the sputum, as well as the more advanced tuberculous, should be entirely rejected or discharged from the army.

#### DISCUSSION ON THE PAPER OF DR. DUREL.

**Dr. C. P. Gray, Monroe:** There are four points I would like to discuss briefly. The first point is the timeliness of this paper of Dr. Durel's and the manner in which he has covered it in the length of time at his disposal. I do that, for the reason, as he mentioned, of the army and draft examinations, especially at this time, not that it will not be important in the future, but at this time we should all consider the importance of this paper and the message which Dr. Durel has tried to give us in the length of time at his command.

The next point which I would like to call attention to, and Dr. Durel mentioned it, but did not emphasize it sufficiently, is the diagnosis. It is surprising and astonishing to know the large number of physicians who wait, not only for moist râles, but all kinds of râles, to appear in the lungs before they consider a diagnosis of tuberculosis. Dr. Durel has stated that 40 or 60 per cent of the cases he examined of supposed tuberculosis proved not to be such, but the majority of those cases developed tuberculosis and might have it in the active form. I have been quite as guilty as others, because at the time I accepted the creosote and forced egg feeding of tuberculosis I did the same thing. I would wait for all manner of symptoms to develop in the lungs before I would entertain the idea of tuberculosis.

Why is it that so many beginning active cases of tuberculosis are passed over, and how many cases are we passing over as heart disease, as stomach disease, as malaria, and so on? Why? Because we do not find the râles in the lungs, because the patient has a rapid heart action, because he has gastric symptoms, and because he has a slight rise of temperature in the afternoon, and you generally know that that is true.

In the majority of cases in the beginning, unless we avail ourselves of the other methods of diagnosis, hundreds of these cases are passed over and given a general diagnosis of malaria, heart disease or indigestion.

A third point I want to mention is with reference to army examinations. In cities the size of New Orleans it is much easier to make these examinations and be more safe about the men going into the trenches who have active tuberculosis. But what are we going to do in our smaller cities, like Alexandria, Baton Rouge, Shreveport, Monroe, etc.? The doctors in these smaller cities are literally swamped with work, and how are we going to detect these cases that Dr. Durel mentioned to you. Unless these men have these active signs and a stethoscopic examination is made we are bound to accept them. I do not think the Surgeon General's office has placed sufficient stress upon that one point, and I do not say it in a spirit of criticism. I believe that a larger and a wider provision should have been made for the tubercular examinations, or rather for test examinations. As it stands at present, we have to do just as Dr. Durel mentioned.

My fourth point is in the form of a question I would like to ask Dr. Durel to answer in closing the discussion, namely: what he said about the three negative skin tests. I did not quite catch what he said regarding that matter.

**Dr. Wallace J. Durel**, New Orleans (closing): I am sorry if I did not voice the feeling and sentiment of the general practitioners in regard to this subject, because they are the ones that have got to solve the problem. Tuberculosis must be solved by the general practitioner. Unfortunately, however, tuberculosis gets the least thought from the general practitioner. The tuberculous patient is the last to be thought of.

Relative to Dr. Gray's question concerning moist râles in the lungs, I assure you that we were greatly embarrassed in our army examinations. You will see a complete report in the "Southern Medical Journal," where I stated the exact facts and the conditions under which we were placed in our army examinations. In our army examinations we were given three minutes to make a diagnosis of tuberculosis, and also three minutes in which to make a diagnosis of cardio-vascular conditions. Gentlemen, I could not do it. Army experts may make diagnoses in that length of time, but I cannot do it.

In an individual not suffering from any toxemia or an acute infection, acute miliary tuberculosis or pneumococcus phthisis, excluding the factors I have mentioned, it means the complete absence of any tuberculous focus, whether active or latent, in that individual. In fifteen years' practice in this line of work exclusively I have not yet seen an individual who had symptoms of tuberculosis, with perhaps no bacilli in the sputum, with negative tuberculin test, with repeated negative skin tests, who did not have, sooner or later, active tuberculosis. I would not pass on any individual unless I had this chain of evidence. I must have the physical findings; I must have by clinical findings; I must have my clinical history, personal and family history; I must have my X-ray findings; I must have my tuberculin findings. You may have the physical findings, you may have the clinical and X-ray findings, which simulate tuberculosis due to other conditions than tuberculosis, and your tuberculin test may be negative. If that happens, regardless of what is said against it, I have never regretted telling such an individual he had not tuberculosis, but I have had cases where I was in doubt whether I could tell the individual he had tuberculosis or not unless I got a positive tuberculin reaction. Then, if I get a positive tuberculin reaction and positive subcutaneous test,

and if there was a constitutional reaction plus a focal lung reaction, I would advise that patient to keep on with his work and mode of living. The active cases must be put under strict treatment.

At one of the army camps we were given greater liberty in using the X-ray. We were limited to the X-ray. We were in the beginning not allowed to take any history.

As to sputum examinations, the applicant might deceive the pathologist. This is what was done: The applicant was furnished a cup and asked to spit into it and the sputum was examined. Unless you get a twelve- or twenty-four-hour specimen of sputum in a doubtful case your sputum examination is worth nothing.

As far as the tuberculin test was concerned, it was prohibited. What has been the result? I have seen in the last two months a case in which a diagnosis of tuberculosis was made and the man was discharged as absolutely non-tuberculous. I have seen other cases that were accepted for duty where, after a few weeks or months, they developed hemorrhage and active tuberculosis. I am glad to say, however, that some improvement has been made. Major Bruns, who has charge of the work, has made wonderful changes for the future examination of men for the army, and I am sure in the next examinations such difficulties as I have mentioned are not going to be met with.

I repeat again, before making a diagnosis of tuberculosis, do not depend upon the lung-findings alone. Any one with a stethoscope can make a diagnosis of tuberculosis. You must have other clinical findings, tuberculin findings, X-ray findings, and so on. It is as much an injustice to tell an individual he has tuberculosis when he has not as it is to tell another individual he has not tuberculosis when he really has it.

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## ACUTE NEPHRITIS IN CHILDHOOD.\*

By SOLON G. WILSON, M. D., New Orleans.

The picture of acute nephritis is indeed familiar to us all. It is a subject that has never lost its interest to the medical profession; consequently in presenting this paper the writer expects it to be discussed from every angle.

We have come to know in recent years that nephritis in childhood does not carry with it the same grave outlook that it did formerly, but instead of feeling that we are dealing with a hopeless situation, as was the case in the past, it is the usual thing to-day to expect most of our cases to get well. It is largely due to Fisher's Treatise on Acidosis that this change of opinion has come about.

In the condition of acidosis where there is a diminution of the alkali reserve of the body fluids, especially of the blood, usually at-

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1916.

tended by an excessive formation of acids with its resulting clinical symptoms.

In other words, an alteration of the equilibrium and normal relationship of the alkalies and acids in the body. The blood, in order for life to exist, must be maintained at a very constant reaction, which is slightly alkaline, and there must be within narrow limits a certain amount of bases over acids. Any change from the normal towards the side of acidity tends to inhibit numerous sensitive metabolic processes in the organism and acidosis results.

Acute nephritis as a primary disease is nearly an unheard-of condition, but is dependent upon either chemical or bacterial irritants. In the immense majority of cases it occurs as a complication of infectious diseases, and during the diseases a condition of acidosis exists.

It is indeed a question whether it is the bacterial irritant in scarlet fever, diphtheria, tonsilitis, parotiditis, measles, malaria, influenza, varicella, general sepsis, acute intestinal infection, or the resulting acidosis, which is ever present in the diseases that are responsible for the damage to the kidneys.

There isn't any doubt that a great many cases are overlooked on account of mildness, and ultimately become serious cases. Usually the first symptoms noted are a slight puffiness about the eyes, nausea; mild frontal headaches is a frequent symptom. Elevation of temperature exists in all cases, but the most striking early symptom is scantiness of the excretion of urine. The urine voided will be reduced from a total quantity of thirty ounces to six or seven ounces. Later a few ounces only may be excreted, or the urine may be completely suppressed. Associated with this is the odor of acetone on the breath.

There is not in the entire field of medicine a place where the laboratory is a greater source of satisfaction. The finding in these cases are albumen, granular (finely granular) casts, blood acetone, indican, pus, and it is your laboratory that will assist you to intelligently know the progress of your patient's case.

**Test for Indican.**—A few c. c. of urine are treated with an equal volume of concentrated hydrochloric acid, to which is added two or three drops of hydrogen peroxide and the contents mixed. Two c. c. of chloroform are then added and the tube inverted several times. In this process the indican is oxidized to indigo-blue, which is taken up by the chloroform. The depth of the blue coloration of the chloroform will serve as an approximate estimate of the amount of indican present.

In absolutely normal urine no blue coloration or, at most, a faint bluish

tinge is observed. Care must be taken not to add too much hydrogen peroxide to the test.

**Test for Acetone.**—To a few c. c. of urine are added a few drops of fairly concentrated solution of sodium nitroprussid, or potassium hydrate, until the mixture is strongly alkaline. A ruby-red color appears in the presence of acetone. If the ruby-red solution be treated with a few drops, say one c. c. of glacial acetic acid, the first red color will change into a crimson or reddish-purple color in the presence of acetone.

**TREATMENT.**—The treatment of acute nephritis might be divided into the following subdivisions:

1, Drugs; 2, water; 3, diet; 4, heat; 5, baths; 6, clothing; 7, hygiene—constantly bearing in mind the acidosis.

Sodium citrates, with me, have been accorded first place, given in ten-grain doses every three hours. Sodium bicarbonate, in ten-grain doses, has served nearly as well. A patient with nephritis, it matters not how mild, should have two bowel evacuations a day, as we are trying to relieve the overworked kidneys. Milk of magnesia or citrate of magnesia answers admirably.

**Water**—The question of water always provokes discussion, one class urging indiscriminate water-drinking and more or less indiscriminate use of diuretics, and the other class withholding water altogether. Too great emphasis has been placed upon forcing kidneys to act and too little upon the necessity of relieving them of the work for which they are temporarily incapacitated. The advocacy of drinking large amounts of water when the blood-vessels of the kidneys are distended and the tubules are obstructed does nothing but harm. My course has been a moderate amount of Vichy or Stafford water, not attempting in any way to force the kidneys.

**Diet.**—In selecting a diet two factors are to be considered: First, a food to maintain your patient, providing his caloric needs; second, to provide a food that will not add to the existing trouble. In these cases there exists a tendency to an indicanuria, which serves as a direct irritant to the kidneys. Even milk contains 4 per cent proteid, and we know nitrogeous foods, such as meats and eggs, should be avoided, in order to relieve the kidneys of the work of excretion of urine and creatin. So we have to reduce the proteid of milk by giving half milk and half cereal water, never giving over twenty-four ounces of milk a day.

**Carbohydrates.**—Cereals, bread and butter, baked potatoes, plain gelatins, malted milk, racahout, zweiback, fruit juices are to be avoided, because of breaking up into hippuric acid, acting as a direct renal irritant. The value of salt-free diet has been generally recog-

nized. The *rationale* was set forth by Widal, Javal and others. In cases of edema it is interesting to see the swelling disappear by exclusion of sodium chloride.

It is interesting to see the rôle that heat plays in assisting in relieving the kidneys of their work by producing diaphoresis. The best method to employ is to improvise an electric light cabinet covered with blankets or, instead, hot-water bottles. A temperature of 110° F. may be maintained an hour if necessary, repeated in eight hours. In severe cases of general edema sulphate of magnesia baths at a temperature of 100° for fifteen minutes, followed by bandaging patient in a solution of Epsom salts, act most satisfactorily in reducing the swelling.

The clothing of a nephritic is most important; he should be protected from drafts. Silk or mixture of silk and wool or flannel should be worn next to the skin. While it is necessary to maintain an equal heat of about 70° F., frequent airing of the sick-room adds to the comfort of the patient.

This plan of management covers eight years, and a great many cases treated in this way are submitted for what they are worth.

#### DISCUSSION ON THE PAPER OF DR. WILSON.

**Dr. L. R. DeBuys**, New Orleans: There are only a few words I want to say in connection with acute nephritis in childhood, and that is, I do not think we should wait for the first symptoms of swelling, edema, headache, and so on. I know of no disease where prophylaxis is more important, and in that connection we should always bear in mind that whenever a child has a disease which predisposes to nephritis we should carefully watch the urine during the entire convalescence.

**Dr. C. H. Pardue**, Vivian: I would like to ask as to the general prognosis in these cases of acute nephritis in children?

**Dr. Joseph O. Weilbacher**, New Orleans: Corroborative of what Dr. DeBuys has said, we ought to go still further and be very careful about the kidneys of all sick children. It is peculiar how often we find that a child will develop nephritis from seemingly almost no cause, whether it be an infectious condition or not. I have particularly in mind a child of my own, who happens to be sick now, one year of age, who had a supposedly idiopathic temperature. The child would have high temperature for three or four hours, and then the temperature would be perfectly normal for about six or eight or ten hours. This condition kept up for several days. The usual routine was gone through, in the beginning, of good purgation, and pyelitis was suspected. The urine was thoroughly examined and proved to be absolutely negative. All conditions were negative for pyelitis, for indican, bile, or anything else. Forty-eight hours afterwards the urine was again examined and found negative for acetone, indican, pyelitis or pus, but it contained bile, and this latter specimen was filled with hyalin, granular casts, which brings out the point that we can never tell when a child's kidneys are going to be in-

volved. In this respect I would like to ask Dr. Wilson his opinion as to whether he thinks bile could produce a large number of casts in the urine. Remember, there was not found present any albumen—nothing but bile and casts.

**Dr. J. L. Adams, Monroe:** I want to relate one case in order to bring out more discussion. It is an interesting case because it came close home. We had a little girl in my town, about six or seven years of age, who, in attending school, developed some tonsillar trouble, and I, being the family physician, was called in to attend the child. I promptly reported her condition to a specialist. He came and looked at the child and said it would be necessary to remove the tonsils. Before the time arrived for the removal of the tonsils the child gave evidences of some nephritic complications, some cardiac condition, which rather contraindicated surgical interference at the time. With the assistance and advice of the specialist we postponed the operation from time to time, until the child was taken from school and confined to bed. She was kept in bed for quite a long time, with all the symptoms of an acute nephritis, both clinical and microscopical. Finally, we abandoned the idea of removal of the child's tonsils, for fear the child would die after the operation. The family became impatient, went to see another doctor, who not only advised, but removed the tonsils. In two weeks' time there was a marked improvement in the child's condition, and in four weeks' time the child was back in the country again attending school. This physician was a little different from some we have had to contend with, in that he was on the square and did not do us any damage.

I report this case so that you may be on your guard in regard to focal infection. If you have any focal infection in the case of a child, look out for a nephritic condition to follow and give you trouble.

**Dr. Charles J. Bloom, New Orleans:** After hearing the question asked by Dr. Weilbacher, and after having followed myself for several months the question of what effect bile has on the urine, I have been watching particularly those cases where a diagnosis of chronic intestinal indigestion has been made, and where, sooner or later, there is present in the urine a large quantity of bile, with evident symptoms of jaundice. It is true, but it is only true where the bile has persisted indefinitely to cause renal irritation, such as would be expressed by the presence of casts. Bile in the urine and bile in the blood increases the blood pressure, slows the pulse, and after a time it acts as a renal irritant.

**Dr. Solon G. Wilson, New Orleans (closing):** I appreciate this discussion very much. I do not know that I brought out anything especially new in the paper, but I do know that when a doctor has a case of acute nephritis he has got a big job on his hands. I think it is his duty to bring into play every means at his command to assist him in watching over his patients and arriving at a conclusion.

I am thoroughly in accord with Dr. DeBuys' remarks with reference to being early in your investigation, probably going further than waiting for symptoms by anticipating your case. That method would save us a great deal of trouble and would keep mild cases mild. As I stated, lots of mild cases become severe because of not having been recognized.

Dr. Pardue asked with reference to the prognosis. I think the prognosis depends upon the early recognition of the disease. I believe if these conditions are recognized early there is no reason why all of them should not get well. We have come to feel to-day that a case of acute nephritis should get well, and when they do not get well we wonder the

reason why, and the answer is probably because they are not recognized early enough.

Dr. Weilbacher asked a question which I am not prepared to answer, with reference to bile. I should say bile probably produces irritation of the kidney. I know that urobilinogen has that effect upon the renal organs, and I have no doubt that the case he has recited was traceable to irritation of the bile.

With reference to the question of diagnosis again, it is a measure that is valuable and hard to apply to children, namely: the phenosulphonaphthalein test. It is a satisfactory test to determine the possible outlook of the case. The trouble about the phenosulphonaphthalein test is that its application makes the child nervous, and they won't void urine for one or two hours, and the test is dependent upon the excretion of the phenosulphonaphthalein. Because of that it is not employed as in adults, but it is certainly worthy of consideration.

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## CLINICAL PHASES OF A CASE OF DERMAL MYIASIS.

By ISADORE DYER, Ph. B., M. D., New Orleans, La.

From notes taken over a period of two years (1914-1916), the case here reported presents several interesting and novel features.

The patient was a man of about fifty-four years of age, several years bed-ridden with asthma, rheumatism, and an associated cardiac deficiency. In the early part of 1914 Dr. Henry Bayon, of New Orleans, asked me to look after the legs of the patient. An acute dermatitis of both legs had rather rapidly given place to fungating ulcers which covered the lower two-thirds of each leg and the upper half of the dorsum of each foot. The mass of ulceration was peculiar, in that it was not uniform. In places there were rather thin crusts of honeycombed tissue, while in others there were varying sized cauliflower growths, some as large as a hen's egg. There were interstices of necrosis, with foul exudate, often covering all of the diseased area. Any part of the leg would bleed easily. There was none of the consistency of a syphilis vegetans, no resemblance to a verrucose tuberculosis cutis. The masses were too dense and aggregated for a frambesiform eruption, and there were too many irregularities in the contour and make-up of the eruption to suggest blastomycosis. Diabetic ulceration was negatived by the urinary findings.

The case was, in fact, unique, and treatment aimed at cleanliness and astringents to reduce the growth.

After several months of observation the patient called attention to several necrotic areas in which worms were present and a number of maggots were actually recovered from the tissue. In order that

these might be identified, Dr. W. V. King, qualified as an entomologist, visited the patient with the writer and his report is attached.

The case at no time was under complete control, and finally died of the associated maladies. The chief interest lies in the entomological findings, which undoubtedly provoked the exaggerated lesions and maintained the disease, after the original infestation of the skin, denuded from an acute dermatitis.

#### MEMORANDUM ON A CASE OF DERMAL MYIASIS CAUSED BY *LUCILIA SERATICA*.

By W. V. KING, Ph. D., U. S. Bureau of Entomology.

In the fall of 1914 a white male patient of Dr. Isadore Dyer, residing in the City of New Orleans and affected with peculiar lesions on the lower limbs, reported that on several occasions at intervals of about two weeks he had noticed fly maggots in the dressings as they were removed from the legs and emerging from lesions themselves. At Dr. Dyer's request a number of the maggots were saved in a bottle of alcohol, and upon subsequent examination proved to be muscid fly larvæ in two stages of development—a few fully developed and many very young ones. These were later determined by Mr. Nathan Banks, of the U. S. Bureau of Entomology, as a species of the genus *Lucilia*.

In December, 1914, in company with Dr. Dyer, I visited the residence of the patient and examined the lesions. No larvæ were present at this time, but it happened that, upon searching the premises, numerous "green bottle" flies were noticed about the yard and around the outside of the house. Several specimens of the flies were collected and later submitted to Dr. C. H. T. Townsend, who determined them as *Lucilia cæsar*, *L. pilatei* and *L. sericata*.

At this time the patient was requested to save any larvæ that might subsequently appear in the lesions, in order that the exact species responsible for the infestation might be determined. In May, 1915, a few fully-developed larvæ emerged, which, upon being placed in bottles of moist sand, soon pupated and some time later emerged as adult flies. These were determined by Dr. Townsend as *Lucilia sericata*.

The blue and green bottle flies of the genus *Lucilia* are of common occurrence in the United States, but are ordinarily outdoor flies and enter houses only when weather conditions are unfavorable to them. The larvæ are found usually on fresh or decayed meats and carrion, also in decomposing vegetables and in excrement, and, in fact, have habits almost identical with those of the common blow-flies, *Calliphora*.

The species *L. sericata* and *cæsar* are widely distributed throughout the world, and in England and parts of Europe are known as the sheep-maggot flies. With their acquired habits of infesting, under certain conditions, the wool and flesh of sheep, they, particularly *sericata*, are responsible for great losses in the sheep industry.

Exact records of the occurrence of *Lucilia* larvæ in human cases of dermal myiasis are not common in the literature, although general statements to the effect that they are responsible for this form of infestation are frequent.

Meinert recorded the rearing of *Lucilia nobilis* from larvæ taken from the ears of a sailor (Banks, 1912).

Austen (1912) recorded the history of a case, as described by Dr. F. W. Andrews, in which hundreds of maggots were found in a chronic ulcer on the lower part of the leg of a patient who has suffering from chronic Bright's disease and dropsy. The larvæ, according to the report, had made a pretty clean dissection of the tibialis anticus and other muscles over the floor of the ulcer, which was some three or four inches in diameter. Austen was of the opinion that the larvæ were either *Calliphora* or *Lucilia*.

MacDougall (1909) found that in cases of sheep infestation the cycle of development of *Lucilia sericata* occupied about four weeks. The eggs hatched in twenty-four hours; the larval period lasted about fourteen



(AFTER HOWARD.)

days, after which they dropped to the ground, and in about fourteen days more emerged as adult flies.

Bishop (1915), from observations made in Texas, found that the developmental period from the egg to the emergence of the adult *Lucilia sericata* ranged from nine to twenty-one days and of *L. cæsar* from eleven to twenty-four days.

The case of infestation with *L. sericata* coming under our notice differs in several points from any I have found described in the literature. The peculiar nature of the lesions, unfeathered, as they were, by ulceration, which is the usual condition accompanying or inducing fly infestation; the extended period over which the larvæ recurred in the lesions, although during all this time the affected parts were kept in dressings and bathed daily with antiseptics; the fact that the repeated infestations did not cause destruction of the tissues, were all important features of the case.

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## SOCIETY PROCEEDINGS

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### REVIEW OF THE SESSIONS OF THE SECTION ON SURGERY, GENERAL AND ABDOMINAL, MEETING OF THE A. M. A., CHICAGO.

Reported by DR. H. B. GESSNER, New Orleans.

The sessions were held in the Auditorium Theater, Congress street. Dr. E. Starr Judd, Rochester, Minn., presided in the uniform of a major in the Medical Reserve Corps; he is director of the special schools for military surgeons. The acting secretary, Dr. Geo. P. Müller, of Philadelphia, was unusually efficient in the performance of his duties.

The first session, Wednesday, June 12, Dr. Truman W. Brophy, of Chicago, the dean of oral surgeons in this country, read a paper on "Congenital Cleft Palate and Harelip." He made mention of an artificial velum of rubber to be used in nourishing cleft-palate babies, whether with the breast or with a feeding-bottle. Early operation,

within one month, was urged by him. Dr. Brophy believes that there is nearly always enough bone in these cases. He advocates (1) union of the bony palate and normalization of the nose; (2) union of the lips six weeks later; (3) union of the soft palate subsequently, before the fourteenth month—*i. e.*, before speech develops. Removing protruding pre-maxillary bones he condemns strongly. Under technic he referred to a small, straight needle with eye in point, as a new development used for carrying silver sutures through the bone.

Dr. A. J. Ochsner (Chicago) paid a tribute to Dr. Brophy's valuable work in the development of palate plastics. He emphasized the consideration of function, saying a palate after operation may look well and be useless for speech. Often an artificial palate permits better speech than an operated one. Uniting the bones lowers them, makes the soft parts more ample. In the after-treatment these patients must be trained to speak, a new language often serving as an excellent means for this purpose. He stressed the value of acclimatizing babies brought from a distance before operating on them and the need of patience.

Sir Arbuthnot Lane (England) made the interesting statement that his youngest patient had been a seven months' baby, within one or two hours after its removal from the uterus; there was no shock at this early period. He referred to the method practiced by him—overlapping muco-periosteal flaps—as affording opportunity for the production of new bone. In war injuries by projectiles, the same principle had been employed.

Dr. Charles Mayo (Rochester, Minn.) brought out the fact that all human anomalies of development are normal to a lower type of life. He also referred to changes in the chemistry of the amniotic fluid as influencing in an important degree the development of the fetus.

Dr. John B. Roberts (Philadelphia) expressed the opinion that selective work must be done, no one method being suited to the fifteen varieties of cleft-palate.

Dr. Brophy, closing the discussion, said there was one phase of the Lane operation he had never been able to understand—*i. e.*, how, when the tissues were turned over, the mucous membrane upward, there could be bone production. He admitted that rarely there might be lack of tissue, but insisted that usually it was sufficient.

Dr. Charles H. Mayo (Rochester, Minn.) presented a paper on "The Principles of Thyroid Surgery." He referred to the active circulation of this gland, which—only one ounce in weight—has all

the blood in the body pass through it in one hour. He dwelt at some length on the chemical substance isolated as the essential thyroid product, thyroxin, for which we have to thank Plummer and Kendall. It governs the speed of energy production in the body. The importance of laryngoscopic examination to determine the degree of interference with the recurrent laryngeal nerve of either side was brought out. Reference was made to the fact that the parathyroids control the elimination of nitrogen from the body. The essayist concluded with the statement that 70 per cent of goiters are cured by operation.

Dr. Donald Guthrie, of Sayre, Pa., read a paper on "Temporary Loss of Voice Following Thyroidectomy." He enumerated, as causes of this condition, trauma to the recurrent nerve (pinching, tying, stretching, pressure by blood-clot), trauma to the larynx and trachea, lues and hysteria. The statement was made that, after ligation of the nerve, function never returns. He emphasized the importance of laryngoscopy for diagnosis and prognosis in these cases.

Dr. Edward G. Jones (Atlanta, Ga.), in his paper, "Goiter in the Southeast; A Systematic Study of 400 Cases," stated that there is less goiter in the South than elsewhere. He spoke favorably of the Goetsch test for hyperthyroidism by the injection of adrenalin.

Sir Arbuthnot Lane protested against the treatment of end conditions in the thyroid, the spleen and the adrenals, suffering from the strain of poison conditions, while the primary cause of trouble—the large intestine—was neglected. He said the removal of this idle effluent would cause enlarged thyroids to disappear. Raynaud's disease was referred to as a disease caused by the absorption of filth through the intestines, improved within twenty-four hours by the removal of the colon. He expressed the fear that surgeons are apt to treat end results because they lose general sense of things surgical in developing special sense exclusively.

Dr. W. O. Porter expressed the opinion that there is as much reason to remove a large non-toxic goiter to prevent injurious pathologic changes as there is to remove a mole to prevent cancerous change.

Dr. Sloan called attention to the fact that some anatomists describe the left recurrent laryngeal nerve as lying deeper than the right.

Dr. C. H. Mayo, closing the discussion on his paper, brought out the fact that nature has given man an oversupply of gland tissue, citing the hypophysis, the thyroid, the parathyroids, adrenals and

pancreas as instances of this oversupply. He said that the loss of 50 per cent of the thyroid—in an adult—is insignificant, though in children it is not the case.

Dr. Edward G. Jones, closing, answered a question by stating that, in the Goetsch test, fifteen minims of adrenalin are administered hypodermatically. If the patient is hyperthyroid, there is a marked elevation of the blood pressure, with tremor; patients complain of lack of support in the lower limbs.

Dr. Willy Meyer, of New York City, presented, under the title, *Glycophilia*," the disease named by Leo Burger thrombo-angiitis obliterans. The study of the blood in these cases shows no evidence of retention of nitrogen, no decrease in the alkaline reserve, but 100 grams of glucose produce a hyperglycemia. These cases, according to Meyer's views, are near-diabetics. He objects to the name thrombo-angiitis, on the ground that there are really no thrombi in the arteries, while those in the veins are secondary, and there is no true inflammatory process. These patients are dehydrated. Treatment is by a duodenal flush (ten quarts a day), according to the plan of McArthur, plus hypodermoclysis with Ringer's, Locke's and bicarbonate solutions. The result is after-restoration of pulsation where it has ceased. These cases sometimes present as many as 7,200,000 erythrocytes, 720,000 platelets. In cases of gangrene, the actual cautery is valuable; associated with plenty of water internally, it permits lower amputation than could otherwise be done.

Dr. Ralph E. Morter (Milwaukee) showed the "End-Results in Cases of Hodgkin's Disease" treated by Yates and Bunting before 1917. Ninety-one cases were reported; fourteen clinically recovered, five well in fourteen months, four under treatment, while sixty-eight patients dead (all late) showed the possibility of prolongation of life and comfort. Treatment was by elimination of portal of entry, radical surgery to reduce the amount of pathological tissue and raise resistance, X-ray, immune serum, and rest.

At the afternoon session, June 12, Dr. E. Starr Judd delivered the chairman's address on "Surgery of the Gall-Bladder and Bile Ducts." This was a most interesting review of the best practice in the diseased conditions of these organs. A noteworthy feature of the address was the reference to the oozing that takes place after some operations on the bile passages, up to eight or ten days after operation. The coagulation time of some cases is over ten minutes. Calcium is not distinctly useful. Transfusion, done before the oozing begins, is useful. After oozing begins, the best plan is to

aspirate the liver with a trocar. After a time bile drains out and this affects the bleeding favorably.

Dr. J. Shelton Horsley (Richmond, Va.) presented a paper on "The Reconstruction of the Common Duct from the Experimental Standpoint." This excellent paper showed the difficulty of such reconstruction, owing to the contraction of the tissues. The reader discussed at length the advisability of using, for such work, tissues of the immediate vicinity, on the ground of their having an immunity to the action of the irritating discharges in their neighborhood.

Dr. Le Grand Guerry (Columbia, S. C.) followed with a "Clinical Report on Reconstruction of the Common and Hepatic Ducts." The fundamental idea presented was that of mobilizing the mucosa of the duodenum so that it may be united directly to the mucosa of the hepatic duct.

In the discussion that followed, Dr. Arthur McArthur (Chicago) gave the details of a case in which he had joined the common duct to the duodenum with a rubber tube. The duct end had to be everted so as to make a cuff, then he everted this cuff in turn so as to make quite a flange; the duodenal end he had made quite long (several inches), so that its weight could ultimately carry it into the bowel. The operation was successful. He believed that the tube had remained *in situ* long enough to permit epithelium from the duct and duodenum to line the passage in which it lay.

At the morning session of Friday, June 14, the first paper was that of Dr. Hermann B. Gessner (New Orleans), entitled "The Therapeutics of Tetanus." Basing his statements on a study of 427 case reports from the Charity Hospital of New Orleans for the years 1906-1917, he eliminated fifty-nine cases for various causes leaving 368 authentic cases on which to base his conclusions. It was shown that the mortality was least in children receiving serum in large doses by the intravenous, subarachnoid, intramuscular and intraneural methods. The final conclusions were these:

1. All cases of accidental injury of a punctured, lacerated, crushed or gunshot character, especially when associated with foreign bodies or with exposure to street, garden or stable contamination, should receive 1,500 units of antitetanic serum at the first treatment.

2. All cases of this kind coming secondarily under observation should receive the serum, though several days have elapsed.

3. If, in this class of cases, suppuration continues, the serum should be repeated at intervals of ten days, as we have reason to believe that its protective influence does not last beyond this time.

4. Cases coming under treatment for tetanus should be isolated in quiet, comfortable rooms, under the care of surgeons and nurses interested in their treatment and confident of improving on past results by devoted attention.

5. Treatment should be by large doses of serum, not less than 10,000 units. Administration by the intravenous, intraneural, intramuscular and subarachnoid methods should be more extensively employed for the purpose of bringing out more thoroughly their value.

6. Food and water, skin cleaning, the care of the bowels, the use of sedatives to calm anxiety and relieve pain, must all receive the closest attention.

Dr. S. J. Meltzer (New York), speaking of a case report on the subarachnoid use of magnesium sulfate, said death had been attributed to pulmonary edema. Yet, a report of thirty-two autopsies of cases that died of tetanus under no treatment, showed that twenty-six of the patients presented pulmonary edema. He stated that bacteriologists have reported the finding of several different strains of bacillus tetani, while the antitoxin being prepared is from still another strain, therefore of questionable utility. He stressed the fact that magnesium sulfate not alone gives a relatively low mortality from tetanus, but also gives greater relief from the pains of the disease than any other remedy.

Dr. A. J. Ochsner (Chicago) quoted Huntington as saying that in the Italian army the use of a prophylactic dose of ten times the supposed normal had reduced the mortality to one-tenth its previous figures. In his clinic, the use of large doses was the rule.

Dr. W. Estell Lee (Philadelphia) stressed the value of the serum for prophylaxis, quoting figures from the French army to show its very great usefulness.

Dr. Brooks recommended the giving of a prophylactic dose proportionate to the time elapsed since exposure to infection.

Dr. W. Estell Lee (Philadelphia) read a paper on "The Use of Dichloramin-T and Other Antiseptics in War Surgery" (lantern demonstration). He said all surgeons had agreed that in war wounds the indications are: (1) Surgical treatment at the earliest moment; (2) removal of foreign bodies; (3) removal of devitalized

tissue; (4) the use of a germicide that will not delay closure; (5) earliest possible closure.

Chlorine compounds have shown themselves superior to all others. Of these, he believed dichloramin-T to be the best, used as strong as 10 per cent strength in oil.

Slides were shown, illustrating by graphic curves the speed and duration of bacterial control by dichloramin-T.

Dr. Edward Ochsner (Chicago) said the error committed by surgeons was that of overlooking the fact that no one antiseptic is good against all bacteria; we must look for specifics in the case of individual organisms. He cited the specificity of phenol for staphylococcus pyogenes aureus, relating instances of its rapid curative effect in carbuncle. He deprecated the harm done useful measures by the overenthusiastic, mentioning Wright's vaccin method as an instance. In his opinion, the hypochlorone compounds are useful in saprophytic conditions only; of very little value in acute septic infections.

Dr. Frank G. Nifong (Columbia, Mo.) presented a paper on "The Hodgen Extension Suspension Splint and Its Exemplification in Both Civil and War Surgery." The essayist stressed the fact that the Hodgen splint affords the immobilization, extension, suspension, flexion and easy approach desirable in fractures of the long bones.

Dr. H. D. Wood (Arkansas) advocated the use of the word orthomelic (melos, a limb) instead of orthopedic.

"The Fall of the Alkaline Reserve Under Surgical Conditions; Its Effects and Prevention," was the title of a paper by Dr. H. W. Haggard, New Haven, Conn.

This paper followed the line of thought of Dr. Yandell Henderson, of Yale, who has presented the concept of shock as due to a diminished CO<sub>2</sub> content of the blood, brought about by rapid breathing (acapnia). The administration of CO<sub>2</sub>, with the anesthetic to keep up its proper proportion in the blood, was among the preventive means suggested for shock.

In the afternoon and final session Dr. Geo. N. Kreider, of Springfield, Ill., read a paper on "Gastroptosis; Its Cause, Prevention and Cure, with Special Reference to the Duhet-Rovsing Operation." The writer enumerated bad habits of eating and drinking, deficient exercise, improper clothing, improper footwear, infections of teeth or air-passages as the cause. A large number of cases are cured by posture, proper eating, hygienic measures in general, and bandages.

In the small number not so relieved, the Rovsing technic of gastric fixation has given good results.

In the discussion that followed, the fact was brought out that, while in some cases raising the stomach level did good, in others this change might interfere with stomach-emptying by raising the pylorus too high.

Next followed a paper by Dr. Arthur C. Strachauer (Minneapolis), entitled "A New Principle in the Surgical Treatment of Brain Tumors." In this paper the fact was brought out that decompression may release the tumor, so that it will "point," coming to the surface, where it may be removed by reoperation.

The final paper of the section meeting was one on "Kondoleon's Operation," by Dr. Walter E. Sistrunk, Jr., of Rochester, Minn., formerly a Louisiana surgeon. Dr. Sistrunk's paper was well illustrated by slides of patients before and after treatment, as well as by others showing the technic of the operation and the pathology of the condition indicating it. He referred to the first paper on the subject in this country, that in which Dr. Rudolph Matas, of New Orleans, presented the subject to the Louisiana State Medical Society in 1913, quoting the latter as giving infection (often, repeated attacks of erysipelas) as the cause of the elephantiasis for which the operation is done. The author had modified the technic of Kondoleon—the excision of a deep fascia, through long incisions, in the limbs—by excising a correspondingly long strip of skin and superficial fascia, not so wide as the deep layer strip. This removes the excess of skin, that would otherwise lessen the cosmetic result. Seven cases have been operated on, with lasting improvement.

Dr. H. A. Royster, of North Carolina, gave the details of a case operated on by himself, previously reported.

Dr. Herman B. Gessner (New Orleans) referred to a case of his own, reported by Dr. Matas in the original American paper on this subject. This case, with two others, had all shown marked improvement; one involved the leg only; one, both legs and thigh; a third, the forearm. All had clear histories of infection, though not one had had erysipelas. In a recent conversation, Dr. Matas had told him of a total of six cases all bettered by interference, including the mother of a local hospital intern, whose close and continuous observation for a long time showed greatly relieved.

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## NEWS AND COMMENT

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AT A RECENT MEETING of the Board of the Eye, Ear, Nose and Throat Hospital, Dr. Henry Dickson Bruns was elected chief surgeon to succeed the lamented de Roaldes, who occupied that position in the hospital since its inception. Dr. Bruns' long service and deep interest in the hospital, as surgeon in charge of the eye department, entitled him to the honor.

DR. JEROME LANDRY has been appointed a house surgeon of Charity Hospital, to succeed Dr. W. H. Kostmayer, who resigned in order to assume charge of the Illinois Central Hospital.

NATIONAL TUBERCULOSIS ASSOCIATION MEETING.—The fourteenth annual meeting of the National Tuberculosis Association was held in Boston from June 6 to 8, under the presidency of Dr. Chas. L. Minor, Asheville, N. C. The following officers were elected: President, Dr. David R. Lyman, Wallingford, Conn.; honorary vice-president, Col. Geo. E. Bushnell, M. C., U. S. A.; vice-presidents, Dr. Lawrason Brown, Saranac Lake, N. Y., and Lee K. Frankel, New York City; secretary, Dr. Henry Barton Jacobs, Baltimore; treasurer, Dr. Wm. H. Baldwin, Washington, D. C. The association adopted resolutions deploring the retirement of Surgeon General Gorgas and requested that he be continued in active service in his present position, so that neither his work nor his plans may be interrupted.

AMERICAN MEDICAL ASSOCIATION ELECTION OF OFFICERS.—At the sixty-ninth annual meeting of the American Medical Association, held in Chicago, June 10 to 14, the following officers were elected: President, Dr. Alexander Lambert, New York; first vice-president, Dr. Wm. N. Wishard, Indianapolis; second vice-president, Dr. E. Starr Judd, Rochester, Minn.; third vice-president, Dr. C. W. Richardson, Washington, D. C.; fourth vice-president, Dr. John M. Baldy, Philadelphia; secretary, Dr. Alexander R. Craig, Chicago; treasurer, Dr. Wm. Allen Pusey, Chicago; speaker of the House of Delegates, Dr. Hubert Work, Pueblo, Colo.; vice-speaker, Dr. Dwight H. Murray, Syracuse, N. Y.; members of the Board of Trustees, Drs. Frank H. Billings, Chicago; Wendell C. Phillips, New York; Thos. McDavitt, St. Paul, and Chester Brown, Danbury, Conn.; members of the Judicial Council, Drs. W. S. Thayer, Baltimore, and M. L. Harris, Chicago; members of the

Council on Health and Public Instruction, Drs. W. S. Rankin, Raleigh, N. C., and Ludvig Hektoen, Chicago.

**TRAINING SCHOOL FOR MENTAL HYGIENE WORKERS.**—A war emergency course is being given at Smith College, Northampton, Mass., under the auspices of the National Committee for Mental Hygiene, to prepare workers to assist in reclaiming soldiers suffering from nervous and mental diseases. This course also will be given at the Boston Psychopathic Hospital. The work is under the direction of Miss Mary C. Jarrett, chief of social service at the hospital. The course will continue for more than eight months and will be open to college graduates and other young women who have had an equivalent of technical training. The academic portion of the instruction will be given at Smith College, to be followed by six months' practice work at various centers. Many eminent psychiatrists, psychologists and sociologists will be among the lecturers in the course.

**NEW YORK'S LOWEST INFANT DEATH RATE.**—A survey of the infant death rate for 1917, showing a decline in infant mortality from 135.8 per thousand in 1907 to 88.8 in 1917, has been made by the New York Milk Committee. The improvement is attributed in part to the medical and educational campaigns, and partly to the efforts of the Milk Committee to improve the sanitary surroundings of infants.

**MOVE TO MILITARIZE STATE HEALTH BOARDS.**—According to reports, the Surgeon General of the Army and his staff have given their approval to a plan for the federalization of all State and, perhaps, all municipal health organizations. A conference on the plans, all the details of which have not yet been worked out, was held in Washington on June 21.

**GASTRO-ENTEROLOGISTS ELECT NEW OFFICERS.**—At the twenty-first annual meeting of the American Gastro-Enterological Association, held in Atlantic City, May 6 and 7, the following officers were elected: President, Dr. Walter A. Bastedo, New York City; vice-presidents, Drs. Thomas R. Brown, Baltimore, and Franklin W. White, Boston; secretary-treasurer, Dr. Frank Smithies, Chicago; recorder, Dr. Horace W. Soper, St. Louis.

**GREEN BAND FOR WHOOPING COUGH.**—The Health Department of Richmond, Va., has authorized the wearing of green arm-bands by children with whooping cough, with a view to preventing the spread of the disease. This will permit the children with the disease to get the fresh air. Rigid quarantine will be instituted in cases of refusal to use the green ribbons. Forty-four babies died in

Richmond last year from this one disease, and forty-six the previous year.

**FREE ANTITYPHOID INOCULATION.**—The United States Public Health Service has been directed by Secretary McAdoo to give antityphoid inoculation without charge to all who apply to any of its hospitals or field offices. Applications may be made to any United States Marine Hospital, to any field office of the Public Health Service or to the United States Hygienic Laboratory, Washington, D. C. The United States Public Health Service, Washington, D. C., will furnish on application information as to the nearest place where an inoculation can be obtained.

**SHORTAGE OF LABOR IN NEW YORK HOSPITALS.**—The labor shortage, according to report, is so serious that many hospitals in New York are being obliged to curtail their work and some are looking forward to the possibility of being compelled to suspend work entirely. Appeal to the Federal authorities to institute measures of relief is under consideration by the Hospital Conference of the City of New York.

**WHEAT OBTAINED BY DOCTOR'S PRESCRIPTION.**—Texas having foregone the use of wheat flour, the Food Administration at Dallas, Texas, on the prescription of a physician, issued to him twelve pounds of wheat flour for a patient suffering from pernicious anemia.

**DEATHS FROM DENTAL DISORDERS.**—The Metropolitan Life Insurance Company states that fifty-two deaths of policyholders in 1917 were traceable to infections of the teeth.

**BADGES FOR MEDICAL STUDENTS.**—Medical students who have been enrolled in the Medical Reserve Corps, subject to call at any time, have been given a badge to keep them from being looked upon as slackers. The badge is the same as the collar ornament worn by privates of the Medical Corps—a large, dark brass button bearing only the Medical Corps insignia, the Esculapian rod, and are worn at the button hole. Medical students in the Reserve Corps are subject to immediate call to the army if they fail in any studies.

**THE AMERICAN PUBLIC HEALTH ASSOCIATION** will hold its next meeting in Chicago from October 14 to 17. The principal topic during the meeting will be "The Health of the Civil Population in War Time."

**THE AMERICAN LARYNGOLOGICAL ASSOCIATION**, at its meeting in Atlantic City, May 29, elected the following officers: President Cornelius G. Coakley, New York; vice-presidents, Geo. E. Sham-

baugh, Chicago, and John R. Winslow, Baltimore; secretary, D. Bryson Delavan, New York; treasurer, J. Payson Clark, Boston; Councilors, Alexander W. McCoy, Philadelphia; Thos. R. French, Brooklyn; Jos. Goodale, Boston; Thos. H. Halstead, Syracuse.

**HOMES OFFERED AS FIRST-AID HOSPITALS.**—H. C. Frick, George J. Gould and S. Lewisohn have offered their New York City homes to the police department as first-aid hospitals in the event of air raids or other emergencies. This announcement came at a committee meeting of the emergency unit of Harlem, New York City, on June 25, which unit is composed of physicians who are training to be prepared to give aid in case of emergency and are instructing those desiring to take lessons in first-aid treatment.

**YALE MEDICAL SCHOOL MEETS REQUIREMENTS.**—Yale University Medical School has met the requirements of the General Education Board and the \$2,500,000 endowment for the medical school is complete. As a part of its yearly income, the medical school will receive interest on the board's subscription of \$582,900.

**REMOVALS.**—Dr. J. W. Kirby, from Charenton, La., to 721 St. Charles street, New Orleans, La.

Dr. T. J. Dimitry, from Maison Blanche Building to 3601 Prytania street, corner Foucher street, New Orleans, La.

**PERSONALS.**—Dr. Edward S. Hatch has returned from service in the army and has resumed his practice in the Maison Blanche Building.

Dr. Marcus Feingold is spending his vacation at Clifton Springs, New York, and will not return until September.

On June 30, 1918, Dr. Samuel Logan, aged 41 years, one of New Orleans' most prominent young practitioners.

**DIED.**—On July 1, 1918, Dr. A. B. Gaudet, prominent aurist of New Orleans, aged 44 years.

On July 2, 1918, Dr. Frank Kerr, of Jackson, Miss., aged 80 years.

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## BOOK REVIEWS AND NOTICES

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**An Introduction to the History of Medicine**, by Fielding H. Garrison, A. B., M. D. Second edition. W. B. Saunders Company, Philadelphia and London.

The student of medicine constantly meets with references to men and times associated with the advancement of medical science. To find a ready reference, giving more or less definite information regarding both men and their periods, should be welcome. It has given us the same pleas-

ant task to scan the pages of this new edition as was afforded when the first edition came before us. The painstaking care in the arrangement and in the compilation of material should earn the praise and support of all students of medicine. As a foundation for more complete records of modern medicine, this work is sure to serve a valued purpose. DYER.

**Physical Diagnosis**, by W. D. Rose, M. D. C. V. Mosby Company, St. Louis.

The author has prepared a most excellent guide to physical diagnosis, carefully planned and especially clear in detail. After establishing proper anatomical characteristics, each of the usual and unusual procedures in diagnosis are practically given, and with well-selected illustrations, elucidating a clear text. Topographic diagnosis is given, including even the conditions of the oral cavity, particular diseases and their special features, are given, with emphasis upon special characteristics of each. Altogether fulfilling the purpose for which the author has intended it—a comprehensive guide to physical diagnosis, with the practical demonstration of all methods and practices. DYER.

**Medical War Manual No. 3. Military Ophthalmic Surgery**, by G. E. DeSchweinitz, M. D., and Walter R. Parker, M. D.

**Medical War Manual No. 4. Orthopedic Surgery**, prepared by the Orthopedic Council. Lea & Febiger, Philadelphia and New York.

These two books, small in size and limited in scope, aim at presenting the conditions commonly met, and with indications for their relief. There is the evident purpose of presenting as much as possible in small space, and with practical methods, easy of acceptance and practice. The illustrations are few, but useful. DYER.

**A Handbook of Antiseptics**, by Henry Drysdale Dakin, D. Sc., F. I. C., F. R. S., and Edward Kellogg Dunham, M. D. The MacMillan Company, New York.

The authors state that the main object of this little book is to give a concise account of the chief chemical antiseptics which have been found useful for surgical purposes during the present war. A brief, but good review is afforded of the chlorine group of antiseptics, of the phenol group, and of a miscellaneous lot of antiseptics of various forms and uses. Morison's paste of bismuth, iodoform and paraffin oil are especially noted in this last group. In separate chapters, methods of testing antiseptics, the disinfection of carriers and the disinfection of water are discussed. The book is of hand-size, and, with its content dealing with many or most of the new antiseptics, it is sure to serve a useful purpose. DYER.

**Long Heads and Round Heads**, by Wm. S. Sadler, M. D. A. C. McClurg & Co., Chicago, 1918.

Dr. Sadler has written in order to help his fellow-Americans to understand the present conflict. He studies the prehistoric races and their evolution, gradually getting down to three distinct species—the Nordic, the Mediterranean, and the Alpine. The first two are long-skulled, the last are round-skulled. The leaders, or militarists in Germany, are Nordic, while the masses are Alpine. Finally, it is the Nordic egotism of the chiefs, joined to the Alpine stupidity of the masses, which furnishes the formula of the German people of to-day. When the inherent tendency of the Nordic element to enter upon conquest is joined to the inherent tendency of the Alpine stock toward comparative stupidity and brutality,

the combination brings about the reign of frightfulness, and we can understand the situation among the Germans.

The writer emphasizes the frequently reiterated statement that Germany is a menace to civilization, and closes with twenty-five good reasons why we must win the war.

The entire book is interesting and well worth reading.

C. C.

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## PUBLICATIONS RECEIVED

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**THE YEAR BOOK PUBLISHERS**, Chicago, 1918.

**The Practical Medicine Series.** Volume I: **General Surgery**, edited by Albert J. Ochsner, M. D., F. R. M. S., LL. D., F. A. C. S. Volume II: **General Medicine**, edited by Frank Billings, M. S., M. D., assisted by Burrell O. Raulston, A. B., M. D.

**THE MACMILLAN COMPANY**, New York, 1918.

**Reclaiming the Maimed**, by R. Tait McKenzie, M. D.

**Infection and Resistance**, by Hans Zinsser, M. D. Second edition, revised.

**F. A. DAVIS COMPANY**, Philadelphia, 1918.

**The Ungearred Mind**, by Robert Howland Chase, A. M., M. D.

**WASHINGTON GOVERNMENT PRINTING OFFICE**, Washington, D. C., 1918.

**Public Health Reports.** Volume 33, Nos. 22, 23, 24, 25 and 26.

**Report of the Department of Health of the Panama Canal.** January, February and March, 1918:

**Service and Regulatory Announcements. Supplement.** (United States Department of Agriculture, Bureau of Chemistry.)

**Report of the Chairman of the Committee on Medicine and Sanitation of the Advisory Committee of the Council of National Defense.** April 1, 1918.

### MISCELLANEOUS:

**Japanese Medical Literature.** A Review of Current Periodicals. Vol. III, No. 2. (China Medical Journal, Shanghai, China.)

**Annual Report of the Bulletin of Surgery.** 1917. (Wm. Ellis Jones' Sons, printers, Richmond, Va.)

**The Medical Report of the Rice Expedition to Brazil**, by W. T. Councilman, M. D., and R. A. Lambert, M. D. (Cambridge Press, Cambridge, Mass.)

### REPRINTS.

**Malignant Diphtheria Treated by Massive Doses of Antitoxin Given Intraperitoneally**, by George Heustis Fondé, M. D.

**Sisyrrinchium Bermudiana**, by Oliver Atkins Farwell.

**Reflections on Vaccinotherapy from the Viewpoint of the Practical Clinician**, by G. H. Fondée, M. D.

**A Simple Method of Water Purification for Itinerant Missionaries and Other Travelers**, by R. G. Mills, M. D.; A. I. Ludlow, M. D., and J. D. Van Buskirk, M. D.

**MORTUARY REPORT OF NEW ORLEANS.**

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for June, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever .....	6	4	10
Intermittent Fever (Malarial Cachexia) .....		1	1
Smallpox .....			
Measles .....	4		4
Scarlet Fever .....			
Whooping Cough .....	7	2	9
Diphtheria and Croup .....	2		2
Influenza .....	1	2	3
Cholera Nostras .....			
Pyemia and Septicemia .....			
Tuberculosis .....	55	40	95
Cancer .....	24	14	38
Rheumatism and Gout .....	3	1	4
Diabetes .....	4		4
Alcoholism .....	2		2
Encephalitis and Meningitis .....	4	1	5
Locomotor Ataxia .....	1		1
Congestion, Hemorrhage and Softening of Brain .....	25	7	32
Paralysis .....	5	1	6
Convulsions of Infancy .....			
Other Diseases of Infancy .....	10	7	17
Tetanus .....			
Other Nervous Diseases .....	7	1	8
Heart Diseases .....	64	49	113
Bronchitis .....	1	2	3
Pneumonia and Broncho-Pneumonia .....	8	16	24
Other Respiratory Diseases .....	4	3	7
Ulcer of Stomach .....	1	3	4
Other Diseases of the Stomach .....	1		1
Diarrhea, Dysentery and Enteritis .....	30	20	50
Hernia, Intestinal Obstruction .....	2	4	6
Cirrhosis of Liver .....	7	4	11
Other Diseases of the Liver .....	5	2	7
Simple Peritonitis .....		1	1
Appendicitis .....	9	5	14
Bright's Disease .....	24	24	48
Other Genito-Urinary Diseases .....	10	11	21
Puerperal Diseases .....	3	4	7
Senile Debility .....	1	1	2
Suicide .....	3		3
Injuries .....	19	15	34
All Other Causes .....	30	30	60
TOTAL .....	382	275	657

Still-born Children—White, 28; colored, 20; total, 48.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 16.37; colored, 31.73; total, 20.53. Non-residents excluded, 17.87.

**METEOROLOGIC SUMMARY (U. S. Weather Bureau).**

Mean atmospheric pressure. . . . . 29.95  
Mean temperature. . . . . 83.  
Total precipitation. . . . . 2.45 inches  
Prevailing direction of wind, Southwest.



# NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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No. 3

## EDITORIAL

### INCREASE IN THE ARMY MEDICAL DEPARTMENT.

The Owen-Dyer bill, which has been finally passed and has received the approval of the President of the United States, provides for a substantial increase in the personnel of the medical department of the regular army.

There is provision for one Assistant Surgeon General for service abroad during the present war, who shall have the rank of major general. The combined purpose of this action may well have been to permit the retention of the most valuable supervisory services of General Gorgas beyond the retiring age, while providing for the active work on the front of a younger man—retaining a Joffre as

the head of the staff, and, we hope, placing a Foch in the fighting area.

There will be also two other Assistant Surgeon Generals with the rank of brigadier general. All these to be appointed by the medical corps of the regular army.

In addition, the President is empowered to appoint in the medical department of the national army, from the Medical Reserve Corps, not to exceed two major generals and four brigadier generals.

The commissioned officers of both the Medical Corps and the Medical Reserve Corps of the regular army shall be proportionately distributed in the several grades, none to be above the grade of colonel, as now provided by law for the Medical Corps.

These additions are estimated to give in the Medical Reserve Corps the following: Two major generals, four brigadier generals, 675 colonels, and over 2,000 of the ranks below. They will provide the medical officers needed to bring the medical department up to proper numerical strength and give the officers the authority necessary to lead to their maximum efficiency.

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## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### RUPTURED GASTRIC AND INTESTINAL ULCERS.\*

By H. W. KOSTMAYER, A. B., M. D., House Surgeon, Charity Hospital, New Orleans.

The cases herein presented are taken from personally-kept records, though they all occurred as part of the writer's routine duties at Charity Hospital during the year 1917:

**Case 1.** F. T., White male, age 49 years, resident of New Orleans; occupation, tyler.

This man was brought in late in the evening of February 14 in so much pain that the following history was all that could be obtained: He has had indigestion or dyspepsia for over twenty years, for which he has taken soda and other remedies, with only temporary relief. Some months ago he had violent cramps in upper abdomen, which put him to bed for some days and from which he recovered. The present attack began with sudden, violent onset about two hours before admission, with pain over his abdomen, especially in the upper right side. He vomited, had a cold, clammy sweat, and he came in with an exquisitely sensitive abdomen throughout. It was intensely rigid, though pulse was fairly good. A diagnosis of a ruptured duodenal or gastric ulcer was made, and the latter was found at the immediate laparotomy.

The ulcer was on the outer wall of the stomach, near the pylorus, with an enormously indurated area surrounding it. It was plastered over with exudate, and in its neighborhood were organized adhesions of the omentum and transverse colon, which are believed to indicate a previous leakage of this ulcer, with spontaneous closure. The ulcer was closed and a posterior gastro-enterostomy was done under great technical difficulties, because of the fixation of the stomach. The patient was returned to the ward in fair condition. No drainage was done.

On being returned to the ward this man's pulse was found very rapid and weak and his respiration shallow. He was given morphia and proctoclysis, which were continued for the next few days as indicated. As soon as he reacted he was placed in the sitting posture in bed and allowed cracked ice and water sparingly. A very persistent and annoying hiccup developed, which subsided after forty-eight hours, though he would never submit to the "stomach tube." Distention was relieved by pituitrin and rectal flushes. After four days of storm he made a slow but steady recovery and was discharged as apparently well on the twenty-eighth post-operative day. During February, 1918, one year after operation, he re-

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

turned, reporting that he was feeling better than he had in twenty years and was able to eat anything.

**Case 2.** H. S., white male, age 37 years, resident of New Orleans; occupation, laborer.

This man states that for one and one-half years he has been having indigestion, with a great deal of distention and discomfort after eating. He has vomited frequently. His pain has always been aggravated by food, and never relieved by it. Soda and diet have seemed to help him. This evening he had a sudden violent pain in the epigastrium, which has grown in intensity until now he is in agony. Morphia has not helped his pain. His abdomen is uniformly distended, rigid and hypersensitive. Diagnosis of a ruptured gastric ulcer was made.

Under ether a right rectus incision was made, confirming the diagnosis. A punched-out ulcer, with a hole about the size of a five-cent-piece, and the whole exudate about the size of a half-dollar, was found upon the lesser curvature and about midway between the cardiac and pyloric ends. This was closed with two rows of cat-gut. The abdominal cavity was filled with gastric contents, so two drains were inserted in the upper incision and two were placed in an incision above the pubis. From the latter an enormous quantity of contents poured out. A gastro-enterostomy was not performed, because of the man's condition and because it was believed the perforation had practically cured the ulcer. Cauterization probably should have been done here.

Sitting posture, proctocolysis, rectal flushes and morphia were used during the first three days, after which the patient made a rapid recovery, being permitted to go home on the fifteenth post-operative day.

**Case 3.** W. B., white male, age 22 years, resident of New Orleans; occupation, hospital orderly.

This patient was seen in the middle of the night by a doctor in town, who sent him in with a diagnosis of acute appendicitis. When I saw him in the admitting room there was a great deal of rigidity and tenderness over the entire abdomen, especially on the right side, near the appendiceal region. The upper abdomen was comparatively flaccid, or, rather, was not as tender and tense as was the lower abdomen. The patient denied having had indigestion or any other discomfort. Before he had this attack, a previous one of violent pain in the right lower abdomen, near the appendix, had subsided until one or two hours before admission, when, following the taking of enemas, the pain recurred much more violent and continued up to the time of his admission. On these findings a diagnosis of an acute ruptured appendix was made and the abdomen opened.

Under ether, a right rectus incision was made and, immediately upon opening the abdomen, free, cloudy fluid appeared, characteristic of a ruptured gastric ulcer. The ulcer was found immediately in the pyloric ring, the pylorus being prolapsed right over the classical point for the appendix. As this patient is 7 feet 2 inches in height, the abdominal cavity was correspondingly low, which probably explains the reference of his pain to the site of the appendix, as also the absence of the upper abdominal rigidity.

The ulcer was closed with a row of interrupted cat-gut sutures and reinforced with continuous "lock" stitch of cat-gut. Posterior gastro-enterostomy was done with cat-gut throughout, with a little difficulty, because there had apparently been some previous leak into the lesser peritoneal cavity, causing some adhesions here.

This patient's first three days were uncomfortable, because of con-

siderable nausea and some vomiting, but from then on he progressed rapidly in his convalescence and was allowed out of bed on the ninth day and went home on the tenth day. He has been heard from several times, and at present writing he is still in perfectly good health.

**Case 4.** E. D., white male, age 58 years, resident of New Orleans.

This old man came in with a history that was confused because of the severity of his malady, and also because he speaks very little English, making it almost negligible. His age, the exquisite sensitiveness of his abdomen and upper abdominal rigidity all point to a ruptured ulcer of the stomach or duodenum.

With this diagnosis the abdomen was opened through a long right rectus incision under ether. A plastic exudate appeared everywhere, with evidence of diffuse peritonitis, the free border of the liver being adherent to the surrounding structure. The abdomen filled with a very cloudy fluid when the liver was freed up, duodenal contents pouring out of the pocket beneath, which, when dried, exposed a perforated ulcer of the duodenum, the center of this ulcer being as large as the head of a lead pencil.

Because of this man's condition, and the fact that the omentum had to a certain extent excluded its contents from the general cavity, and also because the contents poured out too profusely to keep the opening exposed, nothing was done except to drain the abdomen in four different places—one above the pubis, the other three drains in the wound proper. The abdomen was closed with through-and-through silkworm.

Patient was admitted to the ward, from operating room, with pulse of poor volume. Bed was placed in Fowler's position; mustard jacket was applied to chest for thirty minutes; he was given morphia and hypodermoclysis. Patient was restless, and complained of distention throughout this afternoon and early morning of the following day. Morphia given, and proctoclysis was continued. Pulse grew weaker, finally imperceptible, patient dying at 2 a. m. on the second post-operative day.

**Case 5.** E. C., colored male, age 32 years, resident of New Orleans; occupation, laborer.

This darky was brought into the hospital about 10:30 p. m., stating that he was perfectly well up to 1 o'clock that afternoon—that is, about nine hours before admission—when he was taken suddenly with violent pain in his upper abdomen. After a while the pain subsided sufficiently for him to go home from work, when he was again seized with pain and prostrated, but did not vomit. However, on cross-questioning this patient, he admits that he has been having "stomach trouble" for many months, which has sometimes been relieved by taking food, but was never aggravated by it. His abdomen is moderately distended, sensitive and rigid, especially in the region of the upper quadrant, but not nearly as well marked as most cases of ruptured ulcer, so the diagnosis of "ruptured duodenal ulcer" was hesitatingly made. A right rectus incision under ether soon confirmed it, however.

His abdominal cavity was filled with stomach and duodenal contents, which were still pouring from the punched-out duodenal ulcer near the pylorus. The ulcer was closed with Lembert's cat-gut sutures, and a posterior gastro-enterostomy was now done, under great difficulty, because of a very small, thin-walled stomach, which was closely attached to the posterior abdominal wall. It was finally accomplished, the wound was drained and a supra-pubic drain was also inserted.

This patient was returned to the ward in very good condition, considering what he had just gone through, and was quiet that night, after a dose

of morphia, but was greatly distended next day, which distention was very little relieved during the next nine days, in spite of the use of flushes and pituitrin. He seemed to have no recuperative powers and grew steadily worse, dying, apparently of exhaustion, on the ninth post-operative day. No autopsy was permitted.

**Case 6.** I. W., colored male, age 34 years, residence not given.

This patient was brought to the hospital with a history of having been ailing with indigestion for about one month preceding admission. He says that taking food has never caused him any pain. Two days before admission, however, he had a sudden violent pain in the epigastrium, which persisted without relief. He did not vomit, and he has had no stool since the pain first began. His pulse was perfectly normal, but the facial expression is drawn and pinched. His abdomen is exquisitely sensitive all over, but especially in the epigastrium, which is as rigid as a board, despite the long duration of the disease, though it is distended rather than contracted. Diagnosis of a "ruptured duodenal ulcer" was unhesitatingly made, and was immediately confirmed by operation.

Under ether, a right rectus incision was made, and the abdomen was found filled with contents of the bowel; there was already a diffused peritonitis. The ulcer was closed with cat-gut, and one drain was placed over the pubis. Patient died, apparently from exhaustion, the following morning.

It will be readily recalled that all six of these cases are males, in which connection it might be mentioned that the writer has never seen a ruptured gastric or duodenal ulcer in a female. The ages ranged from twenty-one to fifty-eight years, the majority being between thirty and fifty years. There was slight preponderance of whites, there being four out of six cases. Exactly one-half of the cases were gastric and one-half duodenal ulcers, and it is worthy to note that the three gastric ulcer cases survived, whereas the three duodenal ulcer cases died. However, the duodenal cases came to operation after a longer period following the rupture. In all cases, except the first, free drainage was instituted, care being taken to insert a drain over the pubis in addition to draining the wound. No lavage of the abdomen was done. The first case was not drained because the patient presented himself so soon after the rupture, and because there was very little soiling of the peritoneal cavity.

The outstanding feature in the history of these cases is the suddenness and violence of the onset of the symptoms. Patients are usually in such distress that it is only with a great effort that any history at all can be obtained. They beg piteously for relief of pain, and the abdomen is usually exquisitely sensitive, to the extent that even the weight of bed-clothing causes extreme distress. The sufferer resents any attempt at examination, and the abdominal wall is more rigid than for any other condition. Respiration is short and jerky,

because of the immobilization of the diaphragm. The pulse was very good in the cases seen early, but rapid, weak and thready in the late cases. Vomiting occurred about as often as not, so is of no diagnostic value. It is, therefore, very difficult to differentiate between gastric and duodenal ulcers, but the diagnosis of ruptured ulcer of either of these viscera is one of the most certain of all acute abdominal conditions with which we meet, this, of course, provided the case is seen before the late symptoms of peritonitis and exhaustion develop. In these latter stages a diagnosis of surgical abdomen can be made from the physical findings, but it is only by painstaking history details that the true diagnosis can be ventured. In one or two cases the site of the ulcer could be suspected by a relatively more sensitive and rigid area on the abdominal wall, all of which is merely in accord with well-known teachings on the subject.

No far-reaching conclusions can be drawn from so few cases, yet the number suffices to determine that the condition, after all, is not a very unusual one and that the picture is so classical that a little experience and thought will readily lead to an early diagnosis, which is all-important.

As to the treatment of these cases, there can be no doubt that one indication is clear—that is, immediate laparotomy! The next unmistakable step is closure of the ulcer. Whether or not it should be cauterized with a hot iron is open to question, because most ruptured ulcers had cured themselves, so to speak, by rupturing. However, it takes but a moment to apply the cautery to the punched-out area, and it perhaps has its value. As to whether or not gastro-enterostomy should be done undoubtedly depends on the condition of the patient. If the general condition is good, if there are no special technical difficulties, and if the soiling of the peritoneum has not been of long duration, certainly drainage of the stomach by gastro-enterostomy, with its constant relief of irritation of the ulcerated area, will be of great value and benefit to the patient. If, on the other hand, the rupture has occurred sometime before the patient presents himself, and if his general condition will not stand the necessary prolongation of the operation, it is far wiser merely to close the ulcer and drain the abdomen. It is highly important to drain the lower abdomen, because the contents of the stomach and duodenum gravitate rapidly to the pelvis.

The two most important post-operative adjuncts are the sitting posture and rectal flushes. To these may be added the stomach tube

when used as a syphon, it being rather dangerous to wash out the stomach. The patient may be sustained during the post-operative storm by hypodermoclysis and proctoclysis, especially glucose in the latter. Morphia may also be given, and generously.

The next case presents a very different type, but is believed appropriately reported here:

**P. B.**, colored male, age 11 years, resident of New Orleans.

This boy was in the hospital for seven days, being treated for typhoid fever. On this day he had a sudden collapse, pain in his abdomen, with a drop in temperature from 106° to 97°. His white count was 15,250, with 87 per cent neutrophiles. When first seen, ten hours after the original collapse, his abdomen was rigid throughout, with tenderness more marked over the appendix area. A diagnosis of ruptured typhoid ulcer was readily made, and immediate laparotomy was done, through a right rectus incision, under ether. The ruptured ulcer was found about four or five inches from the ileocecal valve, and was rapidly closed with two layers of catgut suture. The wound was drained and stab wounds were made over the pubis and over the left and right iliac fossa, into which cigarette drains were inserted. Peritonitis was already quite diffuse, with no adhesions. Before the wound was closed some twenty-four inches of terminal ileum were examined for further perforation, but none was discovered. He was returned to the ward, in very fair condition, considering the procedure.

This little boy had a post-operative pneumonia and infected wound, which opened down to the peritoneum at one point. He got out of bed several times early in his convalescence, and in spite of all things he finally made a complete recovery and left the hospital on the ——— post-operative day.

This lad had wonderful resisting powers, as most boys of this age have, and undoubtedly it is to this that he owes his recovery. Nevertheless, promptness in diagnosis, rapidity in operating and the institution of free drainage were factors in his recovery also. A sudden collapse in the course of typhoid fever usually means hemorrhage or ruptured ulcer, and the blood count will always promptly differentiate the two. It must be borne in mind that ruptures of typhoid ulcers practically always occur in the terminal eighteen inches of ileum, therefore no needless search of the remaining small bowel should be made.

According to the records of Charity Hospital, this is the only case of ruptured typhoid ulcer operated on that recovered in that institution, and was, therefore, thought sufficiently interesting to be reported.

#### DISCUSSION ON THE PAPER OF DR. KOSTMAYER.

**Dr. C. P. Gray, Monroe:** I feel very much indebted to the doctor for having had the privilege of hearing this paper, inasmuch as it brings home several cases which it has been my unhappy experience to deal with, and there are one or two points I wish to discuss and, at the same time, commend the doctor for bringing out the essential points as best he could in the short length of time at his disposal.

In the first place, let us take a patient who is seized with a pain in the upper abdomen anywhere, and with collapse. Oftentimes these patients faint, and at other times they do not. But they have an excruciating pain, and, to use the layman's language, they have that general fainting feeling, with hot and cold flashes and a weakened pulse—in other words, the same clinical picture that you would expect to find in a ruptured bowel with typhoid fever. Whenever you see a case like that, go over the past history of the patient. If the patient is not able to give you this history, then talk it over with his wife, brother or sister, and you can elicit from them the information as to whether or not the patient had indigestion and pain in the stomach afterwards or before. In the majority of cases you will find these patients have had dyspepsia; they have been taking bicarbonate of soda, and so forth, and probably have been treated by three or four or five or six physicians for indigestion. Almost invariably you will elicit a past history of indigestion, a feeling of fullness, shortness of breath and pain. Bear in mind the pain. You do not get pain when the stomach is full, but usually you get it when the stomach is empty. So much for the past history.

In the other points which I wish to bring out I differ with the doctor just a little. In those cases with the sudden onset of pain and with the symptoms that I have just enumerated, what is your most probable diagnosis? You know, and any one who has practiced surgery at all knows, that you have some surgical lesion in the upper abdomen. What are you going to do? My position is that if you see that patient within the first eight or ten or twelve hours, by all means open the abdomen. If the patient's condition is such that it is not safe, and in your judgment it is not wise to give a general anesthetic, do the operation under local anesthesia. It can be done, and has been done any number of times and with very satisfactory results. If a patient can stand a general anesthetic, give it to him; if not, do the operation under local anesthesia.

In opening the abdomen, whether for a gastric or duodenal ulcer—and, by the way, both practically produce the same symptoms—the question is to meet the emergency, and, as Dr Charles Mayo has said, the man who can meet the emergency is the real surgeon. When you open the abdomen and find a perforated ulcer of the stomach or of the duodenum, close it. In my experience and in my judgment, from a review of the literature on the physiology and visits to the Northern and Eastern clinics, the easiest way to do that is by a simple suture. You may cauterize it, or you may not do so, but my plan is, if the ulcer has already perforated, to go back about one-quarter or half an inch and put a purse-string suture and push it in, and put in another suture to reinforce it, not with silk, but with catgut. After you have done that, then, as the doctor mentioned, put in drainage, and plenty of it, in order to drain the abdominal cavity, and place the patient in the upright position. The reason that I suggest this is that it is my conviction there is good reason for it. It only takes a few hours for the mucous membrane to come together. You can take two loops of bowel in a dog or in a man and suture them together and put the patient or the dog under the influence of morphin, and if you open the abdomen under eight hours you will find a nice serous exudate. The sutures are all covered up, and for that reason I do not believe in doing gastro-enterostomy, but, if necessary, cauterize it gently. If you do not do that, put in a suture and reinforce it with another Lembert, put the patient to bed and, as the doctor has suggested, give him the Murphy drip, and my preference is sterile water, for the reason it

is absorbed more quickly than saline or soda solution, due to the osmosis. You get the effect from the fluid, and that is what the patient wants, and give him or her plenty of morphin.

**Dr. J. L. Adams, Monroe:** This paper is filled with too many important facts and is of too much significance to pass without our freely discussing it. It is a paper that is not only of interest to those of you who are associated with hospitals, but it is of interest to all of us, and for that reason it should be very freely discussed. I rise to emphasize one point, simply because it is not only applicable to surgical conditions of the stomach, but also to shock of all kinds. I was much pleased to hear the doctor say that, if the patient was depleted and exhausted, you should do all you can for him or her before you undertake to do a classical operation. Many a patient is lost, not only in this kind of work, but from all kinds of shock, because we are too anxious to do the operation at once. Put in drainage, allow the man a chance to get well, give him plenty of time, and you will have a better chance, and he will, too.

**Dr. A. C. King, New Orleans:** I would like to ask Dr. Kostmayer to go into a little more detail in closing the discussion as to the rupture of typhoid ulcers compared with hemorrhage. There is nothing else in the paper that I care to discuss, but I would like to know a little more about it.

**Dr. H. W. Kostmayer, New Orleans (closing):** In reference to rupture of typhoid ulcers as compared with hemorrhage, my observations lead me to believe that, with a ruptured typhoid ulcer, there is an immediate increase in both the neutrophiles and the total white cells present; whereas in hemorrhage into the bowel, as a result of the sloughing of the ulcer, there is no increase in the neutrophilic count nor any increase in the total number of white cells. There is subnormal temperature, and, if the patient has pain and vomiting, the rigidity of the abdomen is classical following a ruptured ulcer in the peritoneal cavity, whereas in ulcer of the stomach it is not.

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## SOCIETY LARGELY RESPONSIBLE FOR SOME OF THE MOST POTENT FACTORS OF NERVOUS AND MENTAL DISEASES.\*

By J. CHESTER KING, M. D., Atlanta, Ga.

*Mr. President and Gentlemen of the Louisiana State Medical Society:*

I am happy on this occasion to meet the members of my profession in my native State and in the city where the foundation of my professional career was laid. It was here, in my early manhood, that I came in contact, as my instructors, with Drs. Chaillé, Souchon, Lewis, Jones, Miles and others. I learned to love and esteem them.

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

They have been an inspiration in my work and an inspiration in my life. Tennyson has well said:

“I am a part of all that I have met.”

Recently I have had the pleasure of attending several association meetings, and the spectre of our war stalks in their midst; so pardon me if I refer briefly to some of the phases before presenting my subject to you, which is closely allied to our national betterment.

During the Civil War physicians were non-combatants, for they enjoyed security vouchsafed by a national code, but in the present mad lust for imperialism nothing is sacred in the eyes of the ruthless Hun, for the sky, the sea and the undersea are used as instruments for their death-dealing missiles. The history of the nineteenth century will record an era of barbarism unequaled in the early dawn of civilization developed by the insatiable greed for world-power, of the imperialists of Germany, the country that once held the esteem and admiration of the world; but to-day the school-yard of the English shire, with its hordes of romping children; the hospitals, with their sick and convalescents; the solemn church edifice, with its congregation of devout worshippers; the commercial liner at sea, laden with non-combatants and merchandise and peacefully-disposed passengers have become the unwarned targets of explosives.

Statistics show that the percentage of deaths among medical officers is greater than in any other war and that there are more physicians to-day with the Allies than there were soldiers and officers in the active American Army two years ago.

For this reason, your State meeting to-day overshadows any similar gathering of the past. The subject most potent to us as a progressive nation is, what are the means at our hands of developing a manhood and womanhood who are physically, morally and mentally fit to uphold the glories of our great country? Hence I present for your consideration, “Society Largely Responsible for Some of the Most Potent Factors of Nervous and Mental Diseases.” And before discussing this theme I wish to state that, while a part of our brothers are serving the wounded, dead and dying, if we at home spread and enact the propaganda that will develop a higher and nobler race, when a glorious and permanent peace has been concluded and a grateful world-democracy seeks to bestow its laurels on those who brought it about and while honors will be freely ac-

corded to the artilleryman, the engineer, the navigator of the sea and the pilot of the air, a substantial and well-merited portion will accrue to the physicians.

It has been beautifully expressed by Kant:

“There is in every man a divinity, the ideal of a perfect man, conforming to the type according to which God fashioned, just as in a block of Parian marble an image of a Hercules or of an Apollo would be found if a divine artist had traced there, by means of the natural veins of the marble, the contour and form of the future.”

This statue, it should be the aim of society, to free from the rubbish that conceals it, to evolve its form, to reveal to our consciousness this inherent ideal of divinity, enabling mankind to realize it by aiding the development of all of those germs and dispositions placed within us by God when He made man according to His own image and disposition, which constitutes our rational nature.

Instead of this condition existing, we see society encouraging imprudent speculation, intemperance and vice, augmenting the desire to gain wealth by speculation rather than by honest labor and virtuous efforts, converting our youth into idle vagabonds, filling our prisons and penitentiaries with defaulters, forgers, bank robbers, thieves and murderers.

Is the owner of your gilded saloon, gambling and drinking hells of New Orleans, however high he may stand in church and State, more holy or noble than the miserable, driveling drunkard who staggers into the hospitals or is committed to our asylums or prisons? Is it not a fact that society looks upon the vitality of the race and the health of the family in an indifferent mood? Our prisons and asylums bear testimony to the fact that the communication of disease in marriage is a matter between husband and wife, and society has nothing to do with it. Did the African slave trade, with its floods of poisonous rum and the untold horrors of the middle passage as conducted by the merchants of the New England States in the seventeenth and eighteenth centuries, yield finally any other result than the gigantic, bloody Civil War of 1861-1865, whereby the soil of the United States of America was drenched in the blood of persons and the entire land clad in the garb of sorrow and mourning?

Can the heart of a great State, as revealed in her laws, be rotten and her children be pure, healthy and virtuous? What inducement is there to honest labor and virtuous endeavor, when the mother, a

leader in society, a woman of untold influence, spends the great part of her time, mentality and energy in what she terms innocent and instructive amusement, in being the victor of a prize at a bridge party that would equal in cost the heaviest losings at a \$1 limit poker game during a sitting of four hours? In other words, she points to the gaming table and the deceitful smiles of chance as the royal road to caste, to wealth, to position in State and church.

The laws of the State are defective, society is rotten, when they do not consider man and his offspring from the following stand-points:

1. The development and perfection of the individual, physically, intellectually and morally, for time and eternity as an individual.
2. The development and perfection of the individual physically, intellectually and morally, with reference to his fellowman.
3. The development and perfection of the individual physically, intellectually, socially and morally with reference to his relations to his Creator in time and eternity.

As society should be the fountain of life and strength to the State and nation, we cannot have a law-abiding and united people, a vigorous and healthy national life, when the offspring is morally and physically defective. A wholesome respect for the sanctity and majesty of law must first be engendered in the heart of the boy and girl in their own home and by the father and mother who bore them. We cannot expect the development of a pure, healthy and noble race of women and men when the blood of the mother and father has been poisoned by the contagion of vice and the debasing effects of syphilis. Can the vulture breed the eagle? Can the jackal engender the lion? Can you have a double standard of laws? Can society condone in man what is unsparingly condemned in woman which it accepts as excusable in one and decrees to be unpardonable in the other?

With open doors and open heart the father of a family welcomes to the sanctity of his home men of political influence and wealth, but those whose lives are saturated with the iniquity of vice, born and nurtured in the company of immoral women.

Again, our fair debutantes are often the prey of titled foreigners whose lives have well been spent in riotous living. Exclusive society bids them a hearty welcome and social leaders vie with one another in their cordiality.

It is a well-established fact that "Whatsoever ye sow that shall

ye also reap," and it is up to the fathers and mothers of our land to see that the sowers of vice in all of the different phases which could be handed down be not transmitted to their daughters; for how often is it the case we, as physicians, see innocent wives and children the victims of venereal diseases and the husband and father is the bearer of his venom, which has left in its wake the wreckage of hope, of health, abortions and diseased children?

It has been well said:

"For social crimes and their pitiful consequences, masculine unchastity and the false social code which fosters and promotes it, are largely responsible."

If you ask me the remedy, I will say: Provide for the introduction of a bill which will require each prospective bride or bridegroom to furnish a signed statement attesting to the fact that the signer has not been afflicted with the specified social diseases for five years past. If afflicted within that time, it must be shown that the official test has been given with negative results. As an alternative, the applicant may present a health certificate showing himself or herself to be free of the illness. Take another step and have an examination of all barbers and waiters in the State, whether in restaurants or in soda fountains or elsewhere. In the larger counties of the State let there be free clinics, and in the hospitals, where people afflicted with the diseases might receive treatment and instruction. Let State boards provide for Wassermann tests. Keep a record of those men drafted who stated in their questionnaires that they were or had been afflicted with these diseases. Let the police of every city department round up male and female vagrants who may be the means of spreading the disease and subject them to an examination. Our State laws to-day impose, as a condition of its license to marry, certain regulations relating to the age and the degree of consanguinity of the contracting parties. Cannot the State go farther and demand, as a preliminary condition to granting a license, a medical certificate that both parties are free from any contagious sexual disease? It can impose a civil and penal responsibility for the transmission of venereal diseases in marriage. Get public sentiment aroused, for no law is stronger than the public sentiment behind it. All laws are based upon the rights of human beings, and no human being is justified in communicating his disease to another, whether intentionally or by criminal imprudence,

especially in the relation of marriage, where the victims are powerless to protect themselves.

The candidates for marriage should know the terrible consequences to which they expose their wives and children when they marry with an uncured venereal disease, so that the plea, "I thought I was cured," shall no longer be heard. Cushing has well said:

"The plea of ignorance should no longer be available to shield those who bring disease and death in their families, who ruin the lives of those they have sworn to cherish and protect."

Our knowledge of diseases that leave in their wake blasted hopes and ruined lives avails us little if we cannot utilize it. The knowledge which a man can use is the only real knowledge which has life and growth in it and converts itself into practical power. The rest hangs like dust about the brain or dries like rain-drops off the stove.

Let every man's standard of social morality be elevated. Proclaim to the world that the libertine cannot enter your home. Ostracize the social circles that entertain him. Do not absolve the male offender against immorality while condemning to social infamy the female offender. Health has ever been looked upon as the first of all blessings, and as immortal beings and as members of a profession which deals with immortal beings in their last extremities you cannot, if you would, shut your eyes to the importance of moral and scientific education.

We have three sources for the spreading of this education, viz: the press, the educators and the clergy. Is it being accomplished? Yes, scientific education is making rapid strides in the elimination of the social evils, but social hygiene has accomplished little.

To illustrate: In the great daily press of our country you see detailed on the front page in the most prominent type a disgusting account of domestic intrigue and the social ruin of some one of the inner circle whose life or lives have been ruined by venereal diseases. While the downfall has been vigorously painted to pander to the prurient and depraved taste of its readers, no mention is ever made of venereal diseases which have wrecked their lives. While I can appreciate the attitude of the press on this subject, yet is there not some inconsistency when it often speaks of prostitution, adultery and other violations of moral acts, yet it shrinks from speaking of a common pathological consequence that affects all humanity and is lowering the standard of our social atmosphere?

The clergy and educators stand in awe at the thought of impart-

ing to our young women and young men a knowledge of the hygiene of the reproductive functions.

Until there is a general awakening on the part of the medical profession and no longer venereal diseases are branded by another name; until society welcomes knowledge on this subject, which smites the innocent wife and her offspring; until the press wages a campaign of education against prostitution, the purveyor of this infection; until the ministry throws aside the false social code of morals, which is opposed to the moral code of Christianity, which condones in man what it condemns in woman, and until our high schools disseminate the knowledge of sex hygiene, we live in a day and time of science which is defective, for man is not comprehended in all the various relations of his physical, intellectual and moral nature. The great fields for this development of the human race are: (1) The family; (2) the church; (3) the physician; (4) the university.

The earliest education of all times is that of the family; it is the fountain of life and strength of the nation. Show me where it has been neglected and I will show you lives of physical woes, taunted nerves and mental deficiencies. From the earliest time the church has been the forerunner of education and the salvation of our race. The belief in the immortality of the soul and of a future existence, of pain or pleasure, in accordance with the good or bad acts of an individual, has been widespread at all times, and amongst most races, and has given form to beliefs and rights.

The scientific physician is the nation's guardian of public health. He is entrusted with the lives of his fellowmen; his life is spent in nearest communion with the sick and dying, in sight of the very gates of eternity. From a socio-biological point of view he is the most potent factor of all factors in emancipating from the social evil. To the most modest woman, without offending her most delicate sensibilities, he can speak of sexual life and its diseases; and how often he can forestall the shadow that has fallen over many a home and blighted lives with wrecked nerves and a tortured mentality. The highest type of the physician to-day is the moralist as well as the hygienist.

The material body of man, with its complicated machinery, appears to have been constructed with exact reference to the action of the intellectual and moral nature.

Ancient Greece gave us the heritage of an intellectual, moral and

political education. For the pure life, the health of body and soul, we point to Plato, the Athenian, the pupil of Socrates, whose works remain to this day the great models of Athenian genius, elegance and urbanity, and whose philosophy has been the admiration of all ages.

The thirteenth, fourteenth and fifteenth centuries witnessed the rise of great universities, and to-day the strength and bloom of our American nation are felt in the great power of its educational centers. Natural science and learning receive their most vigorous impulses from the scientific centers. Men of the greatest learning and research have celebrated the power and influence of universities upon the progress of civilization. So, to these powerful agencies, we must look for a healthful moral life. They must say to society, "Your code of morals must be clean." Social prophylaxis must be the password; licentious living, which is a companion of venereal disease, shall not be tolerated. Yet we know that society to-day welcomes to its ranks the libertine, who regards not the sacredness of the home circle nor personal purity or respect for the sacredness of the marriage vow, and scatters in his life the germs of infection.

Society owes it to God and our nation to hand down to posterity a vigorous manhood and womanhood, and thereby wipe out the great social evils—alcohol and syphilis—that are giving us a heritage of moral and physical weaklings and taxing our respective States for appropriations almost beyond endurance.

Conservatively estimated, there are to-day in the United States three-quarters of a million of insane and mental defectives, at an annual cost of about \$110,000,000. And this does not include the border-line cases or epilepsy. The figures would hardly be exaggerated if we computed in each State the number of insane and those of weak mentality not cared for by the State, at the round figure of one million. And yet, one-quarter of this million are allowed to propagate their species, which, if we did not wage a moral, social, political and physical campaign against, history would in the course of time brand us as a nation once powerful, but now degenerated.

As students of difficult and useful sciences and practitioners of medicine, and as citizens of a powerful and free nation, which to-day is fulfilling a high political, religious and scientific mission amongst the nations of the earth, the medical profession's watchword must be, "Preventive medicine"; society's watchword must be, "Social hygiene." The family is the unit of society of the village,

town, city, State and nation. From the union of man and wife and from the fruits resulting therefrom the nation has its perpetual fountain of life and strength. If the fountain is impure, the stream will be foul. Households founded and conducted in violation of the laws of hygiene are standing menaces to the public health. The syphilitic father not only breeds a syphilitic child, but places galling shackles on society.

The injurious effects of alcoholic liquors and narcotics have been thoroughly demonstrated by our profession. A ban should be placed upon it in society. While athletic and gymnastic sports are of great value to our young men and women, and should be encouraged, yet how often do we see their deadly work, by being too excessive or too violent or too rapid, and ailments following, which often fatally diminish or impair the nervous, muscular and vital powers. Many a young man has been sacrificed to over-exertion in the gymnasium and in the violent struggle for mastery in rowing, swimming and ball-playing. This but demonstrates that the American people, as a whole, are extremists and are prone to nervous disturbances. Educational institutions must conform their standards to the demands of public health service, teaching the youth of our land that the stronger race must protect the weaker, that the white race will always be the dominant factor of civilization, and that no greater crime could be concurred in or perpetrated in the annals of humanity than the amalgamation and mongrelization of a superior race with an inferior, or the political subjection of the former to the latter.

Then we shall be like the coral insect—helping to rear an edifice which, emerging from the vexed ocean of conflicting credence, shall be first stable and secure, and at last cover itself with verdure, flowers and fruits, and bloom beautiful in the face of heaven.

#### DISCUSSION ON THE PAPER OF DR. KING.

**Dr. S. M. D. Clark, New Orleans:** I did not expect to discuss this paper. However, I have listened to it with a great deal of interest, but the doctor has touched on so many vital points that it is difficult to know where to begin.

One point in the paper that appealed to me as being along the right line was the one that parents are ill-disposed to discuss sexual questions with their children. We know that most daughters coming to womanhood are absolutely ignorant in every way as to what the menstrual phenomena mean, and as to what things they should do and what things they should not do to avoid trouble. This is still considered in a great many families a subject that should be forbidden, or that it is unlady-like to speak of it. I believe that we, as medical men, along with Dr. King

and others, should argue this question with mothers and do all in our power to overcome this impression—that our young men and young women should grow up in ignorance as to the sexual side. I believe with him that it is the duty of the doctor largely, especially the man in general practice, who is seeing these boys or girls coming into manhood and womanhood, to go to the father or mother and ask them if they have ever discussed this phase of this subject which leads to so many ills, and in the vast majority of cases you will find the father will say, "I do not think I can discuss that with my son"; or if you go to the mother when the girl is on the eve of her menstrual life and say, "Have you not discussed that with her, or does she know anything about it?" the mother will very likely say, "I hardly know how I can do it." A young girl or boy can live just as pure a life by having these matters properly explained to them as if they had never heard anything said about it. They would be just as pure in their souls as if they had never heard a word said about it.

**Dr. C. S. Holbrook, Jackson:** I wish to thank Dr. King, in behalf of the Louisiana State Medical Society, for presenting such an interesting paper. I am sure he did not make his trip all the way from Atlanta to New Orleans in vain. No one could have listened to this paper without being profited by it, and I, as Chairman of the Section, wish to thank him again for presenting it.

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## VOMITING IN INFANCY.\*

By L. R. DE BUYS, B. S., M. D., F. A. C. P., New Orleans.

Vomiting is the symptom which is most commonly met with in children. To simply enumerate the conditions in which it occurs would not be productive of satisfactory results. It shall be my endeavor to present this subject so that, when associated with other symptoms, the proper cause of the vomiting may be ascertained.

Children vomit more readily than do adults: (1) because their nervous system is more unstable; (2) because of the changes in the growth and development of their digestive tract; (3) because of their susceptibility to disease.

Vomiting may be considered from two viewpoints: (1) Mechanical, and (2) Nervous.

Mechanical explanation: (1) a deep inspiration; (2) closure of the glottis; (3) contraction of the diaphragm, and at the same time; (4) opening of the cardiac orifice of the stomach by contraction of the longitudinal muscular fibres, followed by (5) violent

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expiratory contraction of the abdominal muscles, the glottis remaining closed and the diaphragm contracted.

Nervous explanation: The various impulses may be best considered as starting from a vomiting center in the medulla. They are dispatched from this center to the diaphragm by the phrenic nerves, to the stomach and esophagus by the pneumogastric, and to the abdominal muscles by the intercostal nerves.

This center may be excited:

- (1) By direct action on the mucosa of the stomach;
- (2) By reflex stimulation through the peripheral nerves;
- (3) By direct stimulation of the blood;
- (4) By impulses from parts of the brain higher up.

In considering the causes of vomiting, the writer submits the accompanying classification as being both easy to remember and practical.

The associated symptoms and history in the toxic, nervous, febrile and mechanical causes of vomiting as classified above will very readily allow of a prompt and accurate determination of the individual cause of the vomiting.

As the subject is such a vast one, the allotted time will not permit of an exhaustive consideration of it. By remembering, however, the above classifications, we may more promptly determine the cause of the vomiting in a given case.

The purpose of this paper is to deal more particularly with the vomiting as related to the digestive tract, and especially of those occurring during the first few days and weeks of life.

The inflammatory digestive causes of vomiting are easily recognized from the symptoms referable to the stomach, intestines and peritoneum, respectively. As are also the obstructive organic causes, with the exception, at times, of stenosis and atresia. Bismuth or barium and the X-ray are of extreme value in these cases. In the malformation, malposition and dilatations the X-ray and bismuth or barium are indispensable and will permit of a positive diagnosis. The functional stomach causes are also easily recognized and can as readily be cared for.

This would leave, then, for our consideration, stenosis, atresia and feeding as the causes of vomiting.

In studying these cases the history must be carefully gone into. It is essential, in breast-fed babies as well as bottle-fed babies, to determine what the composition of the milk is, also the quantity

Digestive tract.....	Functional..	Feeding.....	Too much Too frequent Improper feeding Too fast Too slow Irregular Handling Shaking Tight binder Position Gas collection	
		Stomach.....	Eliminative Fermentative Indigestive	
	Organic....	Malformations, malpositions and dilatations	{ Esophagus Stomach	
		Obstructive....	Stenosis, Atresia	{ Esophagus Pylorus Intestines
			Within lumen	{ Foreign bodies Impacted feces Worms
	Intussusception, volvulus, hernia Pressure from without			
	Inflammatory..	{ Stomach Intestines Peritoneum		
Toxic.....	{ Drugs—Anesthetics, apomorphin, etc. Digestive—Ptomaine poison, constipation. Metabolic—Acetonemia. Eliminative—Uremia, etc. Acute disease—Diphtheria, etc.			
	Functional..	Violent emotions Exhaustion Excessive cold and heat Hysteria Migraine Recurrent vomiting		
		Organic....	Tumors Meningitis Hydrocephalus Concussion.	
	Reflex.....		Eye, ear, nose and throat Teething	
			Disturbed equilibrium.	{ Vertigo Swinging  Sea-sickness Car-sickness
Nervous....		Irritants in the stomach and intestine Genito-urinary Worms		
	Ebrile—Chiefly toxic. Mechanical—Whooping-cough, habit.			

at each feeding. The feedings should be at regular intervals and the same hours every day. The food should not be given too fast nor too slow. The binder should not be too tight, nor should there be any pressure over the abdomen which will interfere with the normal increased size of the stomach incident to feeding. Remembering the condition of the baby's stomach, he should not be handled nor shaken after feeding, because of the ease with which the stomach can be emptied by vomiting. It is not to be forgotten that there is normally some gas in the baby's stomach, but it may be in excess. In these cases the baby may be allowed to expel the gas in the middle of the feeding by being placed in the proper position—namely, by holding the baby at an angle of about sixty degrees, with his left side up and leaning the baby slightly forward. When the excessive gas is expelled the feeding may be resumed.

If all these precautions are taken and the vomiting continues, further observations must be made. In regard to the quantity, the capacity of the average baby's stomach at the different stages must be remembered. Of course, some babies' stomachs will normally hold more and others less. It is essential to know the composition of food. The fats and sugars of the three elements in milk are the greatest causes of vomiting. The sugars may give rise to fermentation and the vomiting may take place any time in regard to the feeding and the odor of the vomiting will be sour. When the fats are at fault, the vomiting takes place some time after the feeding, one hour or more, and may be curdled or of a watery consistency. In too great quantity, the vomiting is as the food taken and is right after the feeding. From handling or shaking, or pressure over the stomach, the vomiting takes place at the time of handling, etc., and the character of the vomitus depends on how long after the feeding the vomiting occurs.

The weight of the baby is the best guide as to the gravity of the symptoms, for some babies vomit a little for a long period in their early months and grow and gain in weight.

There is another type of vomiting which may or may not be due to dietic error, and that is the vomiting associated with obstruction at the pylorus. The obstruction referred to may be either (1) functional, a pylorospasm, or (2) organic, an hypertrophic pyloric stenosis. In the former, by early recognition and proper regulation of the diet, the cases will get well and thrive. In the latter, the improvement of the patient will depend upon whether the hypertrophy

causes a partial or complete closure at the pylorus, and upon how much food goes through it and to what use the baby puts it. Both of these conditions give the same symptoms—namely, vomiting, peristaltic waves and constipation. Tumor is found in hypertrophic pyloric stenosis. The vomiting is projectile in character, the food often being thrown two or three feet from the baby and over the side of the crib. The quantity is frequently more than that taken at the meal it follows, some of the food at times remaining in the stomach from a previous feeding. The character of the vomitus is usually the same as the food taken. To these symptoms is added the peristaltic waves, which is the evidence of nature's effort to force the food through the pylorus. After the food taken over-distends the stomach the air-ball in the stomach becomes compressed, and in a pneumatic manner causes the food to go in the direction of least resistance—namely, through the cardiac end of the stomach, and is violently thrown through the mouth and nose to the distance mentioned above. At no time in life does promptness in diagnosis influence the prognosis more, as one of these conditions, the hypertrophic stenosis, if complete, is a surgical measure, and the earlier recognized the better the patient's chances. The indications for operation will depend upon the degree of the obstruction, the amount and quality of food which goes through the pylorus and the use to which it is put, and the loss of weight. The use of bismuth or barium in conjunction with the X-ray, as shown in a previous paper,<sup>1</sup> is of special value in the differentiation between pylorospasm and hypertrophic stenosis, and in another paper<sup>2</sup> the treatment of pyloric obstructions has been considered.

1. The Röntgen Ray in Pyloric Obstruction. *Am. Jour. Dis. Child.*, November, 1913, Vol. 6, pp. 344-354.
2. Pyloric Obstruction: Hypertrophy and Spasm, with Moving Pictures Illustrating Peristaltic Waves. *Pan-Amer. Surg. and Med. Jour.*, November, 1916, Vol. 21, No. 11.

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## ON SOME MINOR MATTERS.\*

By HENRY DICKSON BRUNS, M. D., New Orleans.

In these tremendous times, things that we have been accustomed to regard as important have shrunk to such pitiful smallness, that we cannot bring ourselves to treat them seriously. By contrast, very

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small things have come to seem larger than they did. It is only the every-day routine that can claim our attention.

It is impossible, then, to write on any important question in ophthalmology. I shall take the liberty, therefore, of commenting to you upon some minor matters that I have had in mind for a long time.

First, I wish to say a word in defense of an old and valued friend. I see that it is the fashion now in many quarters to "turn the cold shoulder" upon the ophthalmometer of Javal. When I read, "I do not pay much attention to the ophthalmometer nowadays," and I remember the many weary half-hours it has saved me, and the confidence in the correctness of my findings it has given, I feel stirred to protest.

But only, be it understood, if we are speaking of the original instrument with the large, geometrically lined and figured disc which, together with the mires, is observed reflected upon the patient's cornea through the bi-refrangent telescope.

For the instrument with the self-illuminated mires, I haven't a word to say. It is an excellent example of a proposition I am fond of supporting—that all progress is not improvement. Illumination of the mires has undoubtedly made them more distinct and enabled us to define their reflection on the cornea more exactly; but that is all. The valuable principle of the Placido disc, so beautifully carried out in the old instrument, has been abandoned. The moment we placed our eye to the ocular of the old instrument we were struck by the slightest irregularity of the corneal curve, wherever situated, by the distortion produced in the image of the disc. Minute scars—nebulæ—that might otherwise have escaped our notice, were infallibly detected. In the same way it has often happened to me that I noted a degree of nystagmus that had not caught my eye upon mere inspection.

Furthermore, as a detector of the patient's sense, lack of silly nervousness, and self-control, more valuable information can be gathered from this instrument than we are able to get, very often, at the expense of half an hour's talk; and nowhere is the old apothegm: "It is just as important to know the kind of patient the disease has as to know the kind of disease the patient has," truer than in our practice, and perhaps especially in refractive work.

Finally—but here I admit I am not on as firm ground—if one is careful about placing his patient's eye at practically the same point

in the face frame, so as to view every eye under substantially the same illumination, the brightness and clearness of the reflected image conveys a certain indication of the nutritive condition of the cornea. We all know how bright and clear is the image seen upon the cornea of youth; but one may think twice when he finds it replaced by an unexpected dulness, or discovers to his surprise a youthful brilliancy outlasting middle age.

But my main contention is that, well used, the ophthalmometer is an instrument of remarkable precision. Trouble in working out the refraction of an eye comes mainly in determining the amount and the axis of any existing astigmatism; that, theoretically, the ophthalmometer, if adequately illuminated and adjusted, will show by the continuity of the mire lines and by the overlapping of the mire steps, the two principal meridians of the cornea, and the difference between them, cannot be denied; the problem is one of physics.

It follows, therefore, that if the illumination be so carefully arranged and regulated as to give always a sufficiently bright image, and if the observer, having keen, correct eyesight, by patience and practice acquires the skill to judge the continuity of the central lines on the mires and the accurate approximation of their edges in the first position, and the corresponding continuity of the lines and the overlapping of the mire-steps in the second position, he will in every case attain to a close approximation of the degree and of the axis of the astigmatism, unless the defect be lenticular.

The practice I have always followed, of working out the defect, with few exceptions, in all patients of and under forty, under full atropin cycloplegia, and of late, in many between forty and forty-five under homatropin cycloplegia, has given me, I think, an excellent opportunity to judge the correctness of ophthalmometer readings.

When we come to the trial lenses and the test-types, which, when all is said, is our last court of appeal, we may have to modify the amount of the cylinder by a quarter or a half a diopter and the axis by a certain number of degrees, but this is true of any other means of approximation.

I believe, then, that, when on the first sitting, after finding the acuity of vision and the state of the muscle balance, we make a careful ophthalmometer reading and proceed to determine the total manifest cylindrical error, if any, checking our results by the use of the stenopaic slit in many cases, and go on to find any existing

manifest spherical defect, we have adopted the quickest and surest method of arriving at as fair knowledge of the patient's defects as is possible without the use of a cycloplegic. For a thorough knowledge, cycloplegia, and I believe atropin cycloplegia, is necessary, as I have said, in the great majority of young people. But in many of the middle-aged, in those well above middle age, and in a certain number of young people with high errors, *without tropias*, this is all that we need know for the time being. For, in such patients, months and perhaps years will be necessary to lead them gradually to accept their full correction, or that large percentage of their full correction compatible with the state of their muscle balance.

Nothing of this applies, however, when a myopic element is present; in no case of myopia, or mixed astigmatism, I believe, can we dispense with the exact knowledge of the error only to be obtained by measurement under thorough cycloplegia.

In the first place, we are almost sure to make the concave glasses over-strong, and in the second, where the defect is low, either wholly or in a single plane, we are likely to commit the serious mistake of giving a simple or compound concave glass or of introducing a concave element, where emmetropia or low hypermetropia exists.

Perhaps I may close these rather prolix remarks by citing a case lately under observation. A man of 55, whose formula had always been

$$+0.50s \text{C} + 0.50c \text{ ax } 90^{\circ}$$

in each eye, needing a change of glasses, was found to require a cylinder of

$$-0.75 \text{ ax } 15^{\circ}$$

to bring the vision of his L. E. up to the normal 20/20. This was incorporated with his left near glass, and for some years he got along quite comfortably.

At the end of this time another change in the reading glasses being needed, and a great many attempts having failed to give satisfaction and relieve a slight but persistent headache, the patient was persuaded to allow the adequate use of homatropin, and the astigmatism of the L. E. was found with the retinoscope to be

$$+0.75c \text{ ax } 105^{\circ}$$

the use of this cylinder on his left near eye-glass, together with a slight increase in the spherical (presbyopic) correction of the R. E., gave entire relief.

A review of the record showed that the astigmatic defect of this

L. E. had been read with the ophthalmometer and recorded by my colleague, Dr. Robin, four years before, as exactly  $+0.75c$  at precisely  $105^{\circ}$ ; thus showing the precision of the instrument in good hands, and that without a cycloplegic we may be deceived about a myopic error, even in a subject well beyond the half-century mark.

Secondly, I wish to express rather more than a doubt as to the validity of the position now held by boracic, or boric, acid in ophthalmic therapeutics. Upon what grounds does this substance hold its place? Not, surely, as a soothing application. Any one who drops into his eyes a little of a saturated solution—about fifteen grains to the ounce, and the weaker solutions are not worthy of discussion—will at once be disabused of such an idea. The instillation is followed by a rather disagreeable smarting, lasting a few seconds, then by a brief sensation of slight discomfort. As the secretions of the eye are alkaline and even a slight degree of acidity is foreign to the conjunctiva, this might have been anticipated. But this slight disagreeability might well be overlooked if the acid were a good astringent, or, still more, if a valuable antiseptic; for an addition to our list of antiseptics usable in the eyes in adequate strength is greatly to be desired. Boracic acid has no pretense to astringency, and therefore is of no value in any of the hyperæmias. That it is a competent antiseptic, even in full strength, when used in the conjunctival sac, I cannot believe. I have never succeeded in subduing any of the staphylococcic, streptococcic, or pneumococcic infections of the eye—no, not even infections by the Koch-Weeks bacillus, by its use alone. Nor have I seen any of my confrères succeed, or even attempt to succeed, by such means. In a valuable table, in the work of McFarland on “Pathogenic Bacteria,” to which I was kindly referred by Dr. Geo. H. Hauser, the “inhibition strength” of boracic acid is given as 1 in 800 for anthrax bacilli, but as 1 in 100 for putrefactive bacteria in bouillon: the bactericidal strength of a 1 to 30, about a saturated solution, is given for anthrax, typhoid bacilli, and cholera spirillum, as two to twenty-four hours. That is to say, that if we add boracic acid in the proportion of one to every one hundred parts of a bouillon containing putrefactive bacteria, we prevent their multiplication; and if we add this substance to a culture containing typhoid bacilli in the proportion of 1 to 30 we can absolutely bring about their death after a time varying from two to twenty-four hours. When, then, we moisten with a boric solution the pledgets with which we wipe

away the pus from an eye affected with ophthalmia neonatorum or drop a little of the same preparation two or three times daily into one showing a hyperæmia or a slight conjunctivitis, are we doing anything? Are we doing more than when we give a bread pill? For my own part, I much prefer a solution of borax; it is not acid, is a good mild astringent and an excellent cleanser or detergent—the best of all the household eye washes.

Finally: Is it not time that we should cease to see in reports of discussions of the etiology of this or that disease of the eye, expressions by serious men such as: The Wassermann reaction having proved negative, we can dismiss the idea of a specific origin. The reports of all investigators who have given especial attention to this question agree that in all cases of syphilis there are times when the reaction is negative. But if this were not so, have not all of us, as clinicians, observed many instances in which, while the symptoms, may be lesions, were unmistakable and indubitable, the report of the Wassermann test was negative? Is it not almost axiomatic that negative evidence is much less valuable than positive, and must not this be especially the case in dealing with a test in which, as all pathologists will be the first to admit, the personal equation of the tester often plays a considerable part?

A year or so ago a patient consulted me because it had been suggested that "eye strain" might be the cause of the serious and incessant headache from which he was suffering. I examined him carefully under full atropin cycloplegia and found a simple hypermetropia of 1 D. I expressed great doubt that so low and simple an error was the cause of such severe symptoms. In the course of conversation he maintained that it must be, as he had always been an extraordinarily healthy man save for an attack of syphilis some years ago, of which he had been entirely cured. Quite lately, he had had Wassermann tests by two different observers and both had proven entirely negative. It ended by my prescribing the +1s glasses, which he was to wear faithfully for two weeks and then report the result. In that time he reported that his headaches were growing steadily worse and were especially atrocious when he went to bed. I assured him that I believed his headaches to be syphilitic and begged him to try the use of a saturated solution of potassium iodide rapidly pushed up to the point of toleration. In a month he had reached 39 grains of K. I., t. i. d., and I heard that his headaches were gone.

Later, this patient suffered from "lightning pains" in the legs and these again disappeared under a thorough anti-specific course administered at my suggestion by his family physician. Let us, then, as serious men, put aside this easy opinion that if "a Wassermann" proves negative we must give up every suspicion of a specific etiology in any case; let us continue to improve the certainty and delicacy of our clinical observations and stand with courage by our convictions; let us not abandon wholly the power of logical thought, and let us cease to regard the Wassermann test as anything more than one factor—a valuable one, no doubt, if positive—in reaching the sum of our conclusion.

#### DISCUSSION ON THE PAPER OF DR. BRUNS.

**Dr. C. A. Weiss, Baton Rouge:** There is only one point in connection with this paper that I would like to speak of, and that is with regard to a negative Wassermann. Recently a patient, forty-six years of age, came to my office with a well-developed, ill-smelling discharge from the tonsil, deep down in the fossa. It was examined, and the spirillum and bacillus of Vincent was found. I treated it, and the local condition cleared up nicely. The woman told me at that time that her son at the house also had a sore throat. He unfortunately had left town. Six weeks after the original infection in the throat she came to me with the left eye congested and the iris murky-looking. The pupil was very much contracted; she complained of suffering intense pain at night, and in dilating the pupil with atropin there were found three distinct points of adhesion in the iris. I had a Wassermann made, and it was negative. I had another Wassermann, and it was still negative. I put the woman on anti-specific treatment and the condition cleared up. The eye condition cleared up, with the exception of the adhesions of the iris. She is taking specific treatment, but the eye condition cleared up completely.

An interesting feature in this case was the spirillum and bacillus of Vincent which we found in the scrapings from the tonsils. Is this a specific infection in the eye, is it a Vincent infection, or what is the nature of the infection? That is the only point I want to bring out.

**Dr. Oscar Dowling, Shreveport:** I desire to express my personal appreciation of this paper and to say that I know it will be appreciated more away from home than at home. Dr. Bruns is the dean of the profession, not only in Louisiana, but for the South, and his opinion is respected throughout the United States, and I am glad that I had the pleasure of listening to his instructive and interesting paper.

**Dr. T. J. Dimitry, New Orleans:** I would like to discuss this valuable paper presented by Dr. Bruns, and to say that I am fully in accord with what Dr. Dowling has said. I have gone a little further and have put Dr. Bruns down as the Nestor of ophthalmology of the South. I am compelled to disagree with many of the points that he has brought forward. What he said about the use of boracic acid I entirely agree with. I believe it is a sugar pill, and you are merely prescribing something that you really obtain no results from, and are still doing it. Borax, I believe, is far superior. I believe the combination that Dr. Bruns has

popularized in this section of the country is still a better mixture—namely, borax, boracic acid, with a little camphor water. This mixture is most soothing, most agreeable, most acceptable to the eye, but the way boracic acid is usually prescribed by the ordinary practitioner it is not soothing to the eye. Borax should be used by preference.

Unfortunately he did not mention anything as to argyrol. I wish he had done so, hence I am compelled not to say anything, because I believe argyrol is to suffer the same condemnation that we have given to boracic acid. It is not an antiseptic. It really does little good when instilled into the eye, and to be used as often and as freely as it is being used to-day throughout the country, I cannot agree with him. I would say that its substitutes are every bit as good, and at best the borax is equal to the argyrol.

With reference to the Wassermann test, during the week a man came to me with a keratitis. In ophthalmology we are inclined to be a little emphatic in our opinions and to make a diagnosis quickly. I said the man had a syphilitic keratitis, but the man said no; that two Wassermann tests were made by distinguished men and both were found negative. Then he said, "Now, doctor, are you convinced that I have not syphilis?" I replied, "Not at all," and the next day he consented to the administration of a dose of salvarsan, with magnificent results. This man may not have had syphilis.

Next, I would like to take up the instrument of Javal, the ophthalmometer, an instrument that is used for measuring the curvatures of the cornea, probably the most scientific instrument used in ophthalmology, an instrument of precision, exact in detail, most valuable, and one that we like to possess. Its value is about \$125. The use of this instrument is a very easy means of obtaining the curvature or irregularities that have any comparison, one to the other, of the cornea, but that is all that can be claimed for it. It will measure for me the curvature of the anterior surface of the cornea. Valuable as it is as an instrument of precision, still we have at our disposal an instrument equal to it in every sense of the word, that is worth about 85 cents, and that is the retinoscope—an instrument that alone does not measure the curvature of the anterior surface of the cornea, but it measures the posterior surface of the cornea, and it measures the lens and any astigmatism that may be there, and, at the same time, measures the amount of hypermetropia or myopia that may be present. We can do it all at one time, and in the hands of an experienced man it is every bit as rapid as would be the ophthalmometer of Javal. I like the ophthalmometer; it is an excellent instrument, but the little retinoscope, in the hands of those experienced, has relegated it, and that is the reason for the instrument falling to the position it has now assumed in ophthalmology. It is well that we do not depend too much upon this instrument in doing our work—that is, the ophthalmometer—simply because we know that the retinoscope will measure exactly the degree of refraction in all—children, babies, infants—because at times we are compelled to fit glasses to infants, and if you are familiar with the retinoscope you can fit glasses to an infant. You can fit glasses to the infant, to the deaf and dumb, without having answers coming from them to you. It is the only exact method of getting the refractive condition corrected properly. As I have said, the ophthalmometer is a valuable instrument, but its value is less than that of the retinoscope.

**Dr. Charles L. Chassaignac, New Orleans:** I feel it my duty to em-

phasize one point in Dr. Bruns' paper, and that is with regard to the value of the Wassermann test. The subject is such a vast one that it would be impossible to go into the different phases of it, so I shall simply bring up three points, assuring you that my criticism does not tend towards trying to convince you that the Wassermann test is useless or has no value; but I cannot too strongly express my hope that you will be convinced that it is not the infallible test or sign that many take it to be to-day, in the profession and out of it. The first point is, we know on the best of authority, that frequently—I do not mean in a solitary instance—blood taken from a patient, has been divided into two equal parts, prepared in the same way, sent immediately to two different laboratory men, each one a man of ability and integrity, and yet the reports have been different, even to the extent of not minor degrees, because that is expected all the time, but even to the extent of sending an absolutely negative report in one, and in the other a very clear positive report. No comment is necessary. All the conditions are brought forward sometimes as an explanation of why the Wassermann test is not right in this and that particular case, and that has been done by good men on different occasions, with the result I have mentioned. That argument is unanswerable.

In the second place, let us take the most enthusiastic and the most optimistic valuation that is put on the Wassermann test, and we are told that it is between 80 and 85 per cent correct. Let us accept that. Of course, that is a large percentage, if you take the large number of people in the aggregate in a hospital. If you examine everything in a hospital, you can count on an approximate result, call it 85 per cent; yet, admitting that—and I have no reason to doubt it—when you are confronted with a patient at the time that you have nothing else to go by except the Wassermann, and that is the point I want to make, how can you tell whether that patient is one of the 15 per cent where it does not show correctly, or one of the 85 per cent that does show correctly? I defy you to explain. The Wassermann test has its value, but it is merely an added symptom. It reminds me of the story I heard of a man who was asked about the danger of a certain operation, and, in order to convince the patient as to the lack of danger, the doctor told him that it gave a mortality of one per cent. The patient said, "That sounds all right, but suppose that I am the one in a hundred that dies?" When you have a man before you, how can you tell whether he is one of the 15 or one of the 85, unless you have something else to go by? That brings me to the third and last point. It is on account of these two facts I have just mentioned that the laboratory men themselves, who naturally are the ones who attach the most value to the test proper, are preaching constantly and loudly for a standard to be adopted. In other words, they want to standardize the Wassermann reaction. Why? the answer is obvious.

**Dr. Henry Dickson Bruns**, New Orleans (closing): I would like to close the discussion by saying a few things that I did not say in my paper. These were but small points I have had in mind for a long time suggested by reading the reports of Ophthalmological Societies. When distinguished ophthalmologists say that a thing is so and so, it has been taken largely for granted that it is so. I want to encourage all my hearers not to subordinate their intelligence to anything of the kind. That was the reason I brought up these points in the way I did.

With regard to the Wassermann test, Dr. Chassaignac and I have long

agreed on that subject, but I was delighted to hear Dr. Parham and other men express the opinions that they did and come to the same conclusion regarding the Wassermann test as evidence of one kind in making up the sum total of your conclusions, but nothing more than that. You are not to throw overboard all your clinical experience because of the Wassermann test. I did not say anything about argyrol, yet I must disagree with Dr. Dimitry's prophecy.

He missed the whole point that I made about the ophthalmometer. He took the same ground that many ophthalmologists have taken regarding the use of this instrument, and there is an important point he did not bring out. I know that the retinoscope is a good instrument, but it requires a cycloplegic, and you have got to use atropin or use repeated instillations of some other drug. You can use the ophthalmometer on a patient in the first five minutes and get a knowledge of the presence or absence of a most important defect. It is important at the first examination to determine the degree of astigmatism, and then, by adding the correction for the manifest error, you have an important guide to the glass you are going to give the patient ultimately. Take another class of patients, men of forty-five or fifty years of age; they often have a great deal more accommodation than you imagine. In many of these cases it is ticklish business to instil atropin into the eye. You may cause a glaucoma. I am chary about using atropin in the eye of a man who has reached middle age or over. I admit that it is necessary to use a cycloplegic in most cases, but the point is that you get with the ophthalmometer on first seeing the patient a vast amount of valuable information without ever having to put any cycloplegic in his eye.

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## BIOLOGICAL RESEARCH ON THE WOUNDS OF WAR: PHENOMENA OF PROTEOLYSIS IN THE WOUNDS OF WAR.\*

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[647] It is a matter of common knowledge that the evolution of wounds is the resultant of two groups of factors: the phenomena of disintegration and the phenomena of neoformation of the tissues.

The phenomena of disintegration dominate essentially all the general pathology of the first stages of the wounds of war, the stages of "cleansing" (nettoyage).

The notions of gangrene, of development of germs in gangrenous tissues, of intoxication by the products of mortification and necrosis,

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\*Policard, A. *Recherches biologiques sur les plaies de guerre: phénomènes de protéolyse dans les plaies de guerre.* *Lyon chirurgical*, 1916, XIII, 647-659. (Pages of original article are inserted in brackets.)

etc., constitute the greatest part of the history of wounds of war in their first stages.

Now, these anatomo-pathologic processes which intervene then (necrosis, mortification, gangrene, disintegration, colliquation, etc.) ought to be classed in the same category with the bio-chemical phenomena of proteolysis—that is, of displacement of large albuminoid protoplasmic molecules by the proteolytic diastases. The object of this short and elementary review is to recall a certain number of data of physiology concerning these phenomena and to bring out some practical suggestions. Its aim, therefore, is to contribute to the establishment of a scientific basis for the rational therapy of the wounds of war.

#### [648] THE PHENOMENON OF PROTEOLYSIS.

It is known that all the albuminoids, even the most complex, are constituted by the union of molecules of amino-acids, which are like the foundations of the albuminoid structures. These amino-acids have a relatively simple chemical composition. They can be crystallized and dialyzed, and are non-toxic. Grouping themselves according to types infinite in variety, they produce polypeptids. In the degree that these polypeptids become complicated, they lose their capacity for crystallization and dialysis, they become colloids. The proteoses, the peptones with all their varieties still but little known, are the last intermediaries between the polypeptids and the albuminoids; in contrast to the amino-acids, these bodies are often very toxic.

In the phenomenon of proteolysis, the ferment attacks the albuminoid molecule, subjects it to a crushing which detaches fragments from it, some at the start very small (amino-acids), the others more voluminous (peptones, proteoses), which, in their turn, will be crushed into elements smaller and smaller, more and more capable of dialysis, less and less toxic.

Such is, briefly summarized, the work of the proteolytic ferments which result ultimately in transforming a colloidal mass of *protéïques* into a solution of amino-acids.

Proteolysis, then, is essentially a phenomenon of dissolving as to its result and a phenomenon of digestion as to its mechanism.

It seems useless to describe here the aspects of the dissolving of the mortified tissues of a wound. We will recall only two facts:

The first is this, that all proteolytic destruction of a tissue is

preceded by its coagulation. The coagulation of the blood and of the lymph is a phenomenon preliminary to their digestion, as Nolf has demonstrated. The coagulation of milk in the stomach by lab-ferment precedes its digestion. The first sign of the gangrene of a muscle is the appearance of muscular rigidity, a process of coagulation: Prat has recently shown the clinical value of this symptom. Every coagulated tissue is destined for proteolytic destruction. Coagulation is its first phase.

[649] The second fact to be noted is this, the variable resistance of the tissues to the proteolytic attack. The fibrous, and especially the elastic, tissues are very resistant. The muscle, the blood and lymph plasmas, the connective tissues are extremely sensitive. The histologic transformations of the striated fibres in a muscle undergoing mortification are exactly co-extensive with those which have been described in intestinal digestion. The striation of the fibre remains extremely clear for a long time, by reason of the persistence of the small disk, which is very resistant to proteolysis.

The bony tissue, the parenchymas, present reactions quite special with regard to proteolysis.

#### THE PROTEOLYTIC DIASTASES.

Proteolysis is the work of diastases, the proteolytic diastases or proteases.

1. The proteolytic diastases are not of one single type, but of a great number of types. Some attack thoroughly the *protéïques*, breaking them up almost completely into amino-acids. Other diastases do not push the disintegration (broyage) beyond the peptones. These are broken up in their turn, but by other ferments (peptolytic ferments).

All this subject is still under investigation. For the problem which occupies us, the important point to be kept in mind is that of the plurality of the proteolytic diastases.

2. In order to act, the proteolytic diastases require certain well-defined conditions.

The importance of these conditions of action of the proteolytic diastases is a capital element which would merit a long exposition. Among these conditions, it is necessary to note as specially important:

(a) *The Temperature*.—In general, the proteolytic phenomena are correspondingly more active as the temperature approaches more

nearly to about 40° C. There will be a difference of evolution of the phenomena of necrosis in a wound, according as it is located at the level of a healthy extremity with normal temperature, or at the level of an extremity with temperature lowered by a vascular lesion. One will be able to nullify almost completely the proteolysis of a wound by application of ice, as one will be able to promote it by hot applications. Between 60° and 70° the proteolytic diastases are destroyed; one will be able to make a phenomenon of this order intervene in the explanation of certain effects of heliotherapy and of hot air.

(b) *The Content of Water.*—Water is indispensable to the progress of a fermental action. In a dried wound, no phenomenon of proteolysis is produced.

(c) *The Aërobic or Anaërobic Situation.*—Proteolysis is produced essentially in an anaërobic situation.

(d) *The Reaction of the Medium.*—One knows that pepsin acts in acid medium, trypsin in alkaline. According to the acid, neutral or alkaline reaction of the medium, the same ferment will furnish a different chemical effect.

(e) *The Antiseptics.*—They have practically no action on the progress of the diastasic phenomena. This fact has a certain practical importance. By the addition of an antiseptic to the tissue reduced to a pulp, one will eliminate the action of the microbes without destroying the diastasic action; it is a classical procedure in physiology. We can keep in mind this fact, that the proteolysis in a wound will not be disturbed by the use of antiseptics.

3. The proteolytic diastases which intervene in the wounds of war are of variable origin.

(a) In the first place, the *tissues* themselves. A fragment of muscle, aseptically removed and preserved in the oven, is liquefied in consequence of its own proteolytic diastases. It is the phenomenon of autolysis, the rôle of which is so great in pathology. Contrary to the general belief, autolysis, properly so called, plays a feeble rôle in the evolution of the wounds of war, especially if this rôle is compared to that of the leukocytic or bacterial proteolysis. The most elementary observation shows that there is a profound difference in the mode of resorption of a fragment of mortified muscle without there having been rupture of the skin and infection, and the gangrene of the same muscle exposed to the air. Autolysis, particularly that of the muscle, which interests us specially, is, in the wounds of war, a slow, accessory phenomenon.

(b) The polynuclear neutrophile is the sole great agent of proteolysis in the wounds. It has been known for a long time that this variety of cell encloses extremely active proteases; some act in acid medium, others in neutral or alkaline medium. These pro-[651] teolytic leukocytic diastases are very energetic and non-specific; they push very far the breaking up (broyage) of the molecule, whether of their own albumin (case of autolysis of pus), or of other albumins (coagulated serum or white of egg, N. Fiessinger). The normal leukocytes only are rich in diastases; these are set free either by secretion of the living cell, or rather by destruction of the cell bursting, rupture). The maximum of proteolysis is furnished by the rupture of normal leukocytes. These are facts which it is necessary to keep in mind.

(c) The plasma blood or lymph, offers proteolytic qualities truly inconsiderable, which should be referred in great part to the setting free of ferments by leukocytes, either living or in course of destruction. The serum contains peptolytic diastases which act exclusively on the peptones coming from the muscles of animals of the same species (Pincusshon).

(d) The microbes of the wound, especially the anaërobic ones, are the essential agents of proteolysis. The anaërobic germs which are responsible for the phenomena of necrosis and of gangrene belong to a rather large number of species. It is known that the question of plurality of anaërobic germs acting in the phenomena of gangrene is answered to-day in the affirmative. With some appearance of reason, one has been able to classify all these germs, which are butyric ferments, in the same group: that of the *Bacillus Welchii* (Simond). Besides their common botanical characters, they possess all the biologic qualities of the same order; they furnish diastases which attack the carbohydrates, the fats (saponification—that is, the setting free of fatty acids, the *protéïques* substances. Their reducing action on the *protéïques* is not, in general, pushed very far; in the course of the diastasic there are formed proteases, intermediate basic products (ptomaines), all alike very toxic; the amino-acids undergo a reduction; by loss of  $\text{CO}_2$  and of amines, they yield acids (transformation of glutamic into butyric acid, for example). Proteolysis has taken on the character of a putrefaction. All these phenomena are still very inadequately known; their importance is, nevertheless, great, for they are one of the factors of the toxicity of anaërobic microbes; to the toxins properly, so called,

secreted by the germs, are added the toxins [652] resulting from the attack of *protéïques*; among them it is often impossible to establish a distinction.

#### CONSEQUENCES OF PROTEOLYSIS.

These phenomena of proteolysis, the agents and conditions of which have just been considered, play a capital rôle in the evolution of wounds.

1. In the first period of the evolution of a wound of war, proteolysis fulfills a useful rôle, and ought to be favored within the following limits:

All the tissues stricken with death, from the fact of direct traumatism or by reason of vascular troubles, ought to be eliminated. "Surgical" elimination represents a procedure of choice. Outside of that, there is only the natural process of the diastasic liquefaction.

Autolytic proteolysis seems to be secondary. The proteases of the tissues play a rôle, but that is infinitely feeble compared to the leukocytic and bacterial actions.

The real agent of the cleansing (*nettoyage*) of the wound is the polynuclear neutrophile leukocyte. Contrary to the general belief, it seems that the phagocytic rôle of the leukocyte may here be secondary; its essential function is its digestive power. As we have seen, this power is very extended, and leads proteolysis up to simple, non-toxic products.

Bacterial proteolysis contributes indeed to the decomposition of the necrosed tissues. But the special characters of this proteolysis, with production of proteoses, of toxic amines, etc., are such that it is necessary to avoid it at any cost. It would be interesting to apply here the fruitful method of Metchnikoff in the search for a germ, proteolytic without toxic power, which, planted on a wound, would succeed in dominating all the other germs and in digesting the dead tissues without producing toxic proteoses. The question is far from being impossible of solution.

These biologic facts permit some practical deductions.

The treatment of the wounds of war *at their beginning* by artificial and aseptic digestive juices (pancreatic juice, gastric juice) is [653] theoretically justified. It is for the clinic to test this out in actual practice. For that matter, digestive mixtures (enzymol) have recently been introduced by American firms with this

therapeutic end. It seems that attempts of this order have been made in the German army; we are ignorant of their results.

This very great importance of the leukocyte explains the good effect of leukogenic medications (serum of the horse, for example) at this initial period of the wounds. It explains also this excellent and very ancient clinical fact, that the appearance of fresh pus in a wound threatened with gangrene indicates a favorable prognosis. It is quite precisely the notion of the "benign pus" (pus louable). It is known that this pus appears among healthy tissues and mortified regions, and that the decomposition of these latter very quickly follows the appearance of the pus.

A point which may appear paradoxical at first sight is this, that it does not seem useful that the leukocyte be specially protected; it is known (Metchnikoff) that it is in destroying itself that it frees the most ferments. The essential thing is its arrival at the level of the wound. Bérard and Lumière have recently supported an analogous idea, asking "whether the leukocytic destruction is always unfavorable to the struggle of the organism, and whether even the principle of the thesis which contends that the phagocytosis be treated with care is not debatable." This presents a point of view quite new and fruitful.

Finally, the theory justifies the rôle of the antiseptics which prevent or disturb the development of the germs, especially of the anaërobic ones, without injuring the leukocytic afflux or the fermental actions. It seems quite accessory, whether it preserves the leukocytes. The hypochlorites (liquid of Carrel-Dakin) have a very energetic decomposing action on the white corpuscles (N. Flesinger). They favor proteolysis while disturbing the development of the germs.

Thus, at the beginning of the evolution of a wound of war, proteolysis seems like a useful phenomenon, on the condition that it be quite localized topographically, and be very complete chemically.

2. Proteolysis, useful at the beginning, is, on the contrary, extremely detrimental at the moment of the repair of the wound. It disturbs the development of the young connective tissue, the essential organ for the filling up of the wound.

[654] In the wounds at this stage, proteolysis from the doings of the microbes is diminished. The wounds are slightly infected and that by aërobic germs slightly or not at all proteolytic.

On the other hand, the digestive action of the leukocytes is note-

worthy; this injurious action counteracts (compense) the useful phagocytic action. The histologic examination of numerous healing granulations has permitted us to see very clearly that the vitality of a granulation was inversely proportional to the quantity of leukocytes which it contained. It is the polynuclears which are the agents of the very frequent necrosis of the healing granulations. There is a direct relation between the presence of an exudate (pus) and the volume of the granulations (edematous granulations filled with leukocytes and in the course of destruction). These phenomena of necrosis are that much more intense as the leukocytes are less alive; it is known that the proteolytic ferment is specially freed by the destruction of the leukocyte.

These facts of pathology entail the following consequences of practical character, and are applicable exclusively to the repair of the wounds:

It is necessary to exert one's self not to destroy the polynuclears, a destruction which would increase the production of injurious proteolytic diastases. For this reason, among others, the antiseptics are to be rejected and isotonic solutions to be employed if irrigations are necessary.

It is useful to restrict the arrival of the leukocytes. Unfortunately, the practical therapeutic means are lacking for putting this point of view into use; it would be interesting to study methodically the means of realizing the arrest of the leukocytic afflux so injurious at this stage.

The results obtained with leukogenous medications are explained; the serum of the horse, under the influence of a leukocytic afflux, by digestion of the surrounding tissues, brings about the mobilization of deeply lodged foreign bodies (Bassuet), but it also has a deplorable effect on the evolution of the wounds (Mouchet).

The leukocytic proteases are destroyed toward  $65^{\circ}$ ; it is possible to explain in this manner the very remarkable action of heliotherapy and of hot air on the suppurating wounds.

3. In connection with the phenomena of proteolysis is opened the question of intoxication in the wounds of war. It is known that the wounds are quite frequently more intoxicated than infected. Among the initial products [655] of the breaking-up of the albuminoid molecule a certain number are toxic; peptones, proteoses, amino-products, etc.

Absorbed by the venous or lymphatic system, these bodies inter-

vene in the general intoxication of the organism, thus adding their action to the toxins, properly so called, secreted by the microbes. The works of Jobling and of Strouse have instructed us on the toxicity of the secondary proteoses, the proto-albumoses; we begin to-day to know the importance of proteosic intoxication. These phenomena of intoxication are at the maximum in gangrene, because, in addition to the bacterial toxins, incomplete proteolysis by anaërobic germs brings into play a great quantity of toxic proteoses. Kenneth Taylor has insisted on the rôle played by the autolytic poisons in gaseous gangrene. It seems that one can go still farther and assume a toxic factor of proteolytic origin in every wound of war. One can recall the phenomena of toxic order *chez les vieux suppurants*. There is nothing else here than the application of a classic law of general pathology.

These phenomena of intoxication are not only general, but also local. Locally diffused, they prepare tissues not primarily injured to undergo the action of the proteolytic diastases; they are the agents of the extension of the necrotic phenomena. It may seem that it is in part by preventing such an absorption that the lymphatic drainage realized so well by the hypertonic solutions (Wright's solution, sea water, etc.) has its effect.

In relation to the toxic action exerted by the products of proteolysis, it is good to recall that certain antiseptics, in particular the hypochlorites, manifestly play a rôle destructive of the toxins by their oxidizing power (A. Lumière). A probable explanation can be given in no other way of certain facts which one can observe in the method of treatment of wounds by the solution of Dakin (Carrel); for example, those of the wounded without hyperthermia, in spite of a considerable extension of the phenomena of necrosis; in these cases one has the very clear impression that the hypochlorites do not act solely by destroying the germs, but by oxidizing and [656] suppressing the toxins productive of hyperthermia and born of the bacterial or leukocytic proteolysis of the tissues.

#### THE ANTAGONISTIC ACTIONS: ANTI-FERMENTS.

All the proteolytic acts of the organism are counterbalanced by the opposed action of anti-ferments, of antitrypsins in the species. The notion of anti-ferment of recent date is of capital importance in biology.

It seems almost demonstrated that the *supports* of the anti-

tryptic actions in the fluids are the lipoids, specially the fatty acids of the non-saturated series and their soaps (oleic acid). In the blood in the normal state these fatty bodies prevent the proteolytic ferments from acting; but if, for any reason or by any procedure whatsoever, they are removed or destroyed functionally, the proteolytic ferment is no longer masked; it comes into play, the *protéïques*. are digested and the products of their digestion (proteoses) bring about a proteosic intoxication of the organism (Jobling, Petersen, Eggstern). In this manner may be explained the accidents of the anaphylactic crisis, the phenomena of the crisis in the course of the acute maladies (pneumonias), the end symptoms of inanition, etc.

The notion of the antiproteolytic action of the fatty acids is very important in relation to the subject which is occupying us. It is by a mechanism of this character that must probably be explained the resistance of the healthy tissues to proteolysis; but this is only a hypothesis, as this point of the question still remains very obscure.

We have seen that, in gangrene, proteolysis was qualitatively limited, not extending itself very far beyond proteoses. It seems logical to associate with this fact the almost constant presence in these cases of fatty acids, free or in the form of amoniacal soaps. It is easy to verify the fatty character of the gangrenous products. These fatty acids, proofs of the action of saponifying diastases, intervene, disturbing the processes of proteolysis and favoring the production of peptones and of toxic proteoses.

There is perhaps a place for associating with the chapter of the antitryptic rôle of the lipoids the following fact, at least under the form of a hypothesis for study. [657] Certain wounds sometimes show themselves covered over with a thick coating, lardaceous, fatty, with the aspect of a false membrane. Histologically, it is a question of accumulation of leukocytes, many of which are in a state of fatty degeneration. At the level of this layer the phenomena of proteolysis do not seem to take place during a certain time. Then suddenly, frequently without the possibility of any therapeutic intervention whatsoever, this lardaceous layer is transformed into liquid pus; the phenomena of proteolysis appear, this layer is digested and liquefied. All takes place as if the phenomenon of proteolysis had been suspended, then suddenly brought into play again. We have been struck with the lipid character of these lardaceous layers, and it is for this reason that we establish—in the form of a hypothesis, we repeat—a relation

between this fatty constitution and the momentary absence of proteolysis.

Finally, it might be demanded whether the excellent therapeutic action of ether is not connected with its rôle in dissolving fatty substances.

The rôle of the lipid anti-ferments is certainly very great in the course of the evolution of wounds. This question, hardly half opened, deserves continuous biologic researches and therapeutic trials.

#### CONCLUSIONS OF PRACTICAL NATURE.

The facts which we have just set forth in outline demonstrate the importance of the phenomena of proteolysis. It dominates the general pathology of the wounds of war. All the efforts of the surgeon should, as far as this point is concerned, be directed toward two ends: limiting proteolysis topographically, pushing it as much as possible chemically. By obtaining this result one will suppress grave intoxication by the proteoses, and will avoid the development of the germs by causing to disappear the medium of culture formed by the products of the incomplete disintegration of the *protéïques*.

In order to activate this proteolysis, the most physiological means is to favor the arrival of the polynuclear, proteolytic elements par excellence.

[658] From these facts of the "mechanism" one should draw practical results. The majority have already received the consecration of the clinic; others, which might appear at the first view a little paradoxical, demand further study. The inadequacy and the instability of our conditions of work—unfortunately and whatever may be our efforts—have not permitted us to undertake researches in this direction. We hope that others will be more favored by circumstances.

1. During the initial period of cleansing of wounds the result to be obtained is to limit the proteolysis topographically, but to extend it chemically as much as possible, up to molecules the most simple, soluble and non-toxic.

Besides the eventual utilization of artificial digestive liquids, it is in place to favor the leukocytic afflux (use of serum, for example), the freeing of the proteolytic diastases (favoring leukocytic decomposition) and the chemical action of these (hot wrappings).

The use of antiseptics will prevent the formation of the bacterial toxins without injuring the leukocytic proteolysis.

The absorption of the intermediate toxic products of the proteolysis will be combatted by lymphatic drainage (hypertonic liquids), the frequent removal of the dressings, or aspiration.

2. During the period of filling up of the wounds, the proteolytic phenomena are to be avoided.

It would be useful to suppress the leukocytic afflux; unfortunately we have little control over this phenomenon. Researches in this direction would be of great interest.

On the other hand, it is easy to diminish the freeing of the diastases by avoiding the destruction of the leukocytes (no antiseptics, use of isotonic saline solutions, dry dressings).

The proteolytic diastases can be disturbed or even destroyed by heat (hot air, heliotherapy).

Such are the therapeutic suggestions which result from the physiological consideration which we have just set forth. They are in great part still theoretical; it remains for clinicians to demonstrate their practical value.

[659] We have believed it useful to call the attention of surgeons to these great facts of general biology. Their practical importance is considerable, for they condition a rational treatment of the wounds of war.

On many points our ignorance is still great. But it means progress achieved even to put these questions. It is to be desired that researches, laboratory and clinical simultaneously, should verify all these mechanisms still hardly half seen, and furnish the solid scientific foundations of a *physiological therapy* of wounds.

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## NEWS AND COMMENT

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AT A SPECIAL MEETING OF THE EXECUTIVE COMMITTEE OF THE EYE, EAR, NOSE AND THROAT HOSPITAL, held June 24, 1918, a quorum being present, the following memorial was unanimously adopted:

"IN MEMORIAM.

"It is with feelings of the deepest sorrow that the Board of Trustees of the Eye, Ear, Nose and Throat Hospital learns of the death of their beloved co-trustee and surgeon-in-chief, Dr. A. W. De Roaldes, who died at his residence June 12, 1918.

"Dr. De Roaldes was the founder of this hospital and served in

the capacity of surgeon-in-chief up to the time of his death. He was zealous in his efforts to advance and promote the interests of the hospital, which was always foremost in his thoughts, and under his guiding hand the hospital grew from the small, unpretentious clinic, with no equipment, to the splendid institution of to-day, which stands as a monument to him and challenges the admiration of all.

"The trustees recognize, in the death of Dr. De Roaldes, the loss of an invaluable adviser, and the poor have lost a dear and sympathizing friend, always ready to lend a helping hand and to relieve their sufferings and ailments.

"The hospital was the subject of his constant thoughts and untiring labor, and it is not only his advice and services which will be missed, but, even more so, the enthusiasm which he inspired to all connected with his work of love and charity.

"He was a man of unsullied principles, and his heart was full of the finest affections. In his intercourse with his fellowmen he knew but one rule of conduct, and he never was influenced by selfish motives.

"Dr. De Roaldes was known all over the United States and in Europe. His reputation as a surgeon was international, and he was the recipient of many honors from European governments.

"The Board of Trustees tender to the surviving members of his family sincere sympathy in their affliction, and direct that a copy of this memorial be given to the press and furnished to his widow as a feeble expression of the sentiments inspired in this momentous death.

"JOS. A. HINCKS, Chairman.

"R. C. LYNCH,

"E. A. ROBIN."

MEDICAL ASSOCIATION OF THE SOUTHWEST TO MEET.—The thirteenth annual meeting of the Medical Association of the Southwest will be held at Dallas, Texas, the middle of October. The Surgeon-General has been requested to send a number of strong men who have seen foreign service and who can give the news, first hand, as to just what the profession is doing and what it is not doing. A rousing patriotic meeting is anticipated.

RESOLUTIONS PASSED BY THE AMERICAN MEDICAL EDITORS' ASSOCIATION.—At the last meeting of the American Medical Editors' Association, held in Chicago, June 10 and 11, the following resolutions were unanimously passed:

"*Be It Resolved—First:* That we pledge our renewed effort to Surgeon General Gorgas, of the United States Army, and to Admiral Braisted, Surgeon General of the United States Navy, and to the Medical Section, Council of National Defense, in that our pages are open to unlimited editorial space for properly approved

copy in which to bring before the medical profession of the United States the needs of these most important departments.

"*Second*: That an Editorial War Committee be appointed by the chairman, composed of H. Edwin Lewis, editor of *American Medicine*, New York; D. E. de M. Sajous, editor of the *New York Medical Journal*, and the president and secretary, to prepare copy and to energetically carry on this work.

"*Third*: That this Association contribute a sum of money, in addition to the appropriation made by this Society at its session, June 10, 1918, limited only to the resources of this Association, the expenditure of the amount to be decided by the Executive Committee for carrying on this propaganda of education and aid.

"*Fourth*: That the editor of every medical journal in the United States be invited and encouraged to participate in this very necessary work.

"*Fifth*: That copies of this resolution be sent to W. C. Gorgas, Surgeon General of the United States Army; to Admiral Braisted, Surgeon General of the United States Navy, and to the Medical Council of National Defense."

In view of the fact that the first and second vice-presidents are in military service, it was decided that the officers of 1917-1918 hold over until the next annual meeting.

Military education in medical colleges and the medical press, supporting the passage of the Dyer-Owen bill, educating the laity in reference to the zone system of mailing second-class matter, were some of the subjects discussed at the meeting and acted upon.

**HENRY FORD \$3,000,000 HOSPITAL.**—One of the most complete hospitals in the world, largely designed for rehabilitating American soldiers wounded overseas, is being erected in Detroit by Henry Ford. Because of government coöperation in the purchase of materials, it is being erected faster than the average building is constructed in peace-time. The hospital is being built on a twenty-acre tract of land and will have a floor space of 50,000 square feet. It will comprise four stories, with a diagnostic building placed in the center, which will be six stories high. There will be 1,300 windows in the buildings, forty porches, and a roof garden. The institution is to cost \$3,000,000.

**LITTLE VENEREAL DISEASE AMONG TROOPS IN FRANCE.**—The Army Medical Corps' figures, made public on July 12, 1918, state that venereal disease among the troops is being controlled both here and in France with remarkable success. "In France, with probably 700,000 men mobilized, the rate reported on June 13 showed less

than one new case per thousand men each week. Before the war the lowest rate in the regular army was double this."

**CLAIM CURE FOR GAS GANGRENE.**—The *Chicago Tribune* announced recently that a special cablegram had been received stating that Prof. Vincent recently read a paper before the Paris Academy of Sciences in which he described a serum which he has prepared which has been effective even in severe cases of gas gangrene.

**LEAGUE OF AMERICAN DENTISTS' WAR WORK.**—The Preparedness League of American Dentists, comprising more than 15,000 dentists who have pledged themselves to give at least one hour of their time daily, including materials, to men selected for the army, navy and marine corps, reports that 50,000 free operations have already been performed. The league is supplementing the work of the army in making recruits dentally fit. There are 48,664 dentists in the United States and the league is trying to obtain a 100 per cent membership at \$1 a year.

**TWENTY-FIVE THOUSAND STUDENT NURSES WANTED.**—The Council of National Defense finds that it has become necessary to call for 25,000 student nurses for training in American hospitals. The enrollment began July 29, and those who register will thereby be subject to call for training in the army nursing school or in the civilian hospitals until April 1, 1919.

**A DRUG COMMISSION ASKED FOR.**—A resolution has been introduced into the United States Senate by Senator Frelinghuysen for the appointment of a commission of three to examine into the subject of narcotics and habit-forming drugs and appropriating \$50,000 for the expense of the commission.

**AMERICAN ASSOCIATION OF MEDICAL JURISPRUDENCE DISSOLVED.**—The majority of the members of the American Association of Medical Jurisprudence have filed a petition in the Supreme Court of New York City for the dissolution of the association. The membership has decreased from 200 to 23 members, and there is said to be a general lack of interest in the organization.

**POLITICAL ACTIVITY FORBIDDEN TO RED CROSS WORKERS.**—Under a ruling made by the War Council, the officers and workers of the American Red Cross will not be allowed to run for any public office in the coming general election, or be active in the interest of any candidate.

**TO MOBILIZE ALL DOCTORS.**—A plan is under consideration whereby the government may assume control of the entire medical profession of the United States, in order to obtain sufficient doctors for the army and so to distribute those remaining that their services may be rendered in those places in which they are most needed. The plan will be to throw open the membership to all doctors, instead of enrolling in the Voluntary Medical Service Corps only those physicians not suitable for military service, either because of age, physical infirmity, dependency or institutional or public need. Conferences were held in Washington, July 18, and in a number of other cities, to discuss the operation of the voluntary enrollment plan. A plan is also being considered by the Surgeon Generals of the Army, Navy and Public Health Service for commissioning all teachers in the medical schools and assigning them to their present duties, for the purpose of preventing further disruption of medical teaching staffs and at the same time recognizing the public service of those men.

**WOMEN ANESTHETISTS FOR ARMY SERVICE.**—For the reason that many wounded soldiers prefer the care and attendance of women, the army is appointing women anesthetists. Fifteen have already been appointed, receiving the pay and privileges of first lieutenants, without, however, the actual rank. Only graduate women physicians are eligible.

**GIFT AND HOME FOR NAVY HOSPITAL.**—Commodore and Mrs. Morton P. Flint, of Brandford House, Eastern Point, Conn., have given to the Navy Department, for the duration of the war, the use of the Watson House for a hospital for convalescing sailors and soldiers. A gift of \$10,000, to equip the hospital, accompanies the use of the residence.

**AMBULANCES NAMED FOR MAJOR MITCHELL AND QUENTIN ROOSEVELT.**—The last of the 112 ambulances provided for service on the Italian front by the American Poets' Ambulances in Italy will be inscribed in honor of Lieut. Quentin Roosevelt and the 111th ambulance will be named for Major John Purroy Mitchell.

**COLUMBIA UNIVERSITY GETS ESTATE.**—The bulk of the estate of the late Major Eugene Wilson Caldwell, M. R. C., U. S. A., amounting to about \$150,000, is to go to Columbia University on the death of his wife and mother. The sum which the university is to receive will be known as the Eugene Wilson Caldwell Fund and is to be

used for general educational purposes. Major Caldwell bequeathed his laboratory and its contents to Dr. Harry M. Imboden and Thomas Riker, his friends and collaborators, with the request that they continue the work upon which he was engaged.

**OBSTETRICIANS AND GYNECOLOGISTS TO MEET.**—The thirty-first annual meeting of the American Association of Obstetricians and Gynecologists will be held at the Hotel Statler, Detroit, September 16 to 18, under the presidency of Dr. Albert Goldspohn, Chicago. Dr. James F. Davis, Detroit, is chairman of the committee of arrangements.

**PERSONALS.**—Dr. Chas. Chassaignac and family left for Balsam, N. C., the early part of the month, for a three weeks' vacation.

Dr. Marcus Feingold, after a month's stay at Clifton Springs, N. Y., is now in Denver, Colo., where he will remain for several months. Dr. Feingold is rapidly regaining his health, and will no doubt be able to return to his practice and college duties this fall.

Dr. Geo. H. Meeker, dean of the Graduate School of Medicine, University of Pennsylvania, visited New Orleans and Tulane College of Medicine during the month in the interest of his school.

Capt. C. Jeff. Miller, M. R. C., has obtained a leave of absence for a much-needed vacation and will spend a few weeks in the East during September.

Dr. Peyton Randolph, of Georgetown, Texas, a graduate of Tulane, Class 1914, is now serving a commission "Somewhere in France."

Dr. S. M. Blackshear (New Orleans), first lieutenant, M. R. C., left during August for Camp Shelby, Miss., where he will remain until called for foreign service.

**REMOVALS.**—Capt. Walter N. Moore, M. R. C., from Lisman, Ala., to Camp Gordon, Ga.

Dr. W. B. McDaniel, from Byars, Okla., to Maysville, Okla.

First Lieutenant T. F. Batson, M. R. C., from Base Hospital, Camp Beauregard, Alexandria, La., to Base Hospital No. 86, Camp Logan, Houston, Texas.

The Modern Hospital Publishing Company, to Garland Building, 58 East Washington street, corner Wabash avenue, Chicago.

Among the doctors of New Orleans who have returned from their vacations and resumed their practice are: Drs. Abraham Mattes, 602 Perrin Building; Solon G. Wilson, E. J. Richard, W. A. Gillespie.

The following are some of the Louisiana physicians who are serving on duty in the various camps:

At Camp Beauregard, Alexandria, La., Base Hospital: Capts. Maurice J. Couret, William M. Leake, New Orleans; Lieuts. Amable A. Comeaux, Gueydan; William T. Patton, Paul T. Talbot, New Orleans. For duty, from Fort Oglethorpe, Lieut. John C. Chapman, Colfax.

At Camp Lee, Petersburg, Va., for duty from Camp Dix: Major James B. Guthrie, New Orleans.

At Camp Sheridan, Montgomery, Ala., for duty from Fort Oglethorpe: Lieut. Allen B. Wheelis, Marion.

At Fort Jay, N. J., for duty, from Fort Riley: Lieut William E. Balsinger, New Orleans.

At Fort Oglethorpe, for instruction: Lieut. William L. Bendel, Lake Charles; Edgar J. Beranger, New Orleans; William E. Barker, Plaquemine.

At Fort Sam Houston, Texas, for duty, from Camp Travis: Major Edmund Moss, New Orleans.

DIED.—On August 26, 1918, Dr. W. O. Schultzman, of Baton Rouge, La., aged 26 years.

On August 9, 1918, Lieutenant-Colonel Clarence Leroy Cole, M. R. C., Fort Sam Houston, Texas.

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## BOOK REVIEWS AND NOTICES

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*All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

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**Blood Transfusion, Hemorrhage and the Anemias**, by Bertram M. Bernstein, A. B., M. D., F. A. C. G. J. B. Lippincott Company, Philadelphia and London.

Dr. Bernstein has given in this book of 250 pages a review of the various methods of blood transfusion and the indications for same.

He briefly, but concisely, treats of practically all phases of the subject, such as the phenomenon of bleeding, the diagnosis and control of hemorrhage, also the indications and the dangers, as well as the methods, of transfusion.

The work adheres to the practical side of the subject, both as regards discussions of indications and selections of transfusion methods. In the appendix the author has given the various hemolytic and agglutination tests described by Moss, Brem, Simon and Sydenstricke.

The book is certain to prove of value to the physician who is engaged

in clinical work of this nature and who desires to know concretely what is being done and how to do it. ELIZABETH BASS.

**Typhoid Fever**, by Frederick P. Gay. The MacMillan Company, New York.

The author has presented in this small volume an excellent exposition of the problem of typhoid fever.

It treats historically the development and present status of our knowledge concerning this important malady as viewed from the standpoint of its mechanism.

It shows the very close relationship between the clinical and the laboratory side of the disease by following the life-history of the typhoid bacillus rather than the manifestations of the disease it produces.

The book is divided into a number of chapters which cover the general survey of the knowledge concerning typhoid fever, the disease as a cause of death and disability, the modes of infection and the pathogenicity of typhoid fever, the diagnosis, sequelæ and carrier conditions, general measures of protection, treatment, etc.

The chapter on the protective value of vaccination against typhoid fever and the statistics relative to same are most interesting reading

ELIZABETH BASS.

**Studies in the Anatomy and Surgery of the Nose and Ear**, by Adam E. Smith, M. D. Paul B. Hoeber, New York, 1918.

This is a very timely book, made up of original matter by the author, and is thus a veritable contribution to our knowledge of the subjects discussed. The illustrations are from actual dissections made at the Columbia University Medical School, and these alone would stamp the work as of a high order. The anatomical points are of a practical nature and show the structures as they are, and not schematically. In regard to treatment, the book again is eminently practical. The author dwells particularly on the value of posture in the treatment of otitis media and mastoiditis, in which operative intervention can sometimes be avoided. In a number of cases of incipient mastoiditis the present writer has brought about a recession of symptoms and complete *restitutio ad integrum* without a mastoid operation. Another practical point elaborated is the treatment of antral and frontal sinus disease by suction.

Dr. Smith has placed at the disposal of the profession a valuable addition to our knowledge of the topics touched upon. McSHANE.

**Interpretation of Dental and Maxillary Roentgenograms**, by Robert H. Ivy, M. D., D. D. S. C. V. Mosby Company, St. Louis.

This is a valuable addition to the scientific literature on this subject, and should command the attention of students of radiology.

Interpretation of the Roentgenograms is by far the most important step of the entire procedure, and the author has carefully prepared his text not only to aid the inexperienced, but to lay down fundamental rules for the expert.

WALLACE WOOD, Jr.

**Oral Sepsis in Its Relationship to Systemic Disease**, by William W. Duke, M. D., Ph. B., Kansas City, Mo. C. V. Mosby Company, St. Louis, Mo.

This publication is a splendid contribution to the relationship of ill-health and defective teeth, and which every dentist should carefully

peruse. It contains much information the average medical practitioner will appreciate, and perhaps open the eyes of some few. It brings dentistry in closer relationship as a specialty of medicine.

WALLACE WOOD, Jr.

**Pharmacology and Therapeutics and Preventive Medicine** (Vol. VIII of the Practical Medicine Series). Edited by Bernard Fantus, M. S., M. D., and Wm. A. Evans, M. S., M. D., LL. D., Ph. D. The Year Book Publishers, Chicago. Series 1917.

This delightful little volume gives in concise and well-edited form the progress in these departments of medicine during the period covered. The first 220 pages are devoted to pharmacology and therapeutics, and the rest of the volume to preventive medicine. The whole text enables the busy practitioner or teacher to cover in a few hours what it would take him weeks to glean from the field of medical literature. A greatly added value is the discriminating editorial comment. If there is one feature more than another worthy of commendation, it is the attention given to the new agents and the new uses of old agents developed as a result of the world-war. One in service, or going into it, will find the book of particular value.

O. W. B.

**Materia Medica, Pharmacology, Therapeutics, Prescription Writing**, by Walter A. Bastedo, Ph. G., M. D. Second edition. W. B. Saunders Company, Philadelphia, 1918.

The second edition, which adjusts the text to the new Pharmacopœia, is no disappointment to the great number who so highly appreciated this work when it first came from the press about three years ago. The author shows a wonderful command of his subjects and wisely avoids the mass of unessential details, so often given, to the confusion of the searcher after knowledge.

The drugs are arranged in groups according to their action, and the text is reinforced with numerous illustrations.

While the several phases of the subject are well handled, the particular value of the work is as a pharmacology. As a readable pharmacology it has few peers. The section on *Digitalis* is worth the price of the volume.

There are a few minor details that were not adjusted to conform to the great authority—the Pharmacopœia. Such are almost unavoidable in the rush of a general revision. They are, for example, the frequent use of c. c. instead of mils., gm. instead of Gm., dram instead of drachm, etc.

The noted author and teacher deserves the thanks of the entire medical profession.

O. W. B.

**A Handbook of Practical Treatment**. Vol. IV. By John H. Musser, Jr., B. S., M. D., and Thomas C. Kelly, A. M., M. D. W. B. Saunders Company, Philadelphia, 1917.

This addition to the original Vol. III set of Practical Treatment "has been brought out for the purpose of giving the various original contributors opportunity of making in their articles such change or modifications as have occurred in the therapeutics of those diseases, the treatment of which they have already detailed. Thus, we believe it possible to supplement their contributions and to make them complete, both as to detailed treatment and as to the newer and modern procedures." Where the original contributors were unavailable, through death or other

cause, the editors have been fortunate in securing men of the highest international repute. Much entirely new matter has been included and the revision of old articles has usually been so arranged as to make practically complete reading.

A glance at the list of contributors and the well-known character of the young editors would assure even the most skeptical.

Some minor details that might well be suggested to the publishers are the correction of some errors in the Latin termination in prescriptions, the more uniform use of the standard Pharmacopœial or chemical titles in place of old proprietary names, and the conforming of nomenclature to the great authority—the United States Pharmacopœia.

Without the previous volume, this one is highly valuable. A library containing the earlier work could ill afford to miss this opportunity to complete the set.

O. W. B.

**Essentials of Volumetric Analysis**, by Henry W. Schimpf, Ph. G., M. D., Professor of Analytical Chemistry in the Brooklyn College of Pharmacy. John Wiley & Sons, New York.

The appearance of the new United States Pharmacopœia has necessitated the revision of all textbooks touching the science of medicine, chemistry and pharmacy. This fact, together with the exhaustion of the second edition of Dr. Schimpf's helpful book, has caused the issuance of a third edition.

The work is an excellent introduction to the broad subject of volumetric analysis and is especially adapted to the needs of students of pharmaceutical chemistry.

The subject-matter is systematically arranged and the processes grouped under the headings of Alkalimetry, Acidimetry, Precipitation, Oxidimetry, Indirect Oxidation, Iodometry, Assay Processes for Drugs, Estimation of Alkaloids, Phenol, and Sugars.

The principles underlying these several groups are definitely indicated and illustrated by numerous practical examples. This third edition shows many new assay processes, prominent among which are those of the mercurial salts, phosphates and hypophosphites, chlorates, perborates, chloral, acetone, resorcinol, phenylsulphonates, arsenates, and alkali cacodylate.

The nomenclature employed throughout the work is consistent with pharmacopœial requirements. If the aim of the author is to present the principles of volumetric analysis in a form readily intelligible to students, it is the belief of the reviewer that he has accomplished his purpose.

Not the least important feature of the book is an appendix devoted to the description and application of indicators.

GEO. S. BROWN.

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## PUBLICATIONS RECEIVED

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**J. B. LIPPINCOTT COMPANY**, Philadelphia and London, 1918.

**The Essentials of Materia Medica and Therapeutics for Nurses**, by John Foote, M. D. Third edition, revised and enlarged and reset.

**International Clinics**. Vol. 11, twenty-eighth series, 1918.

**Nursing Technic**, by Mary C. Wheeler, R. N.

**C. V. MOSBY COMPANY**, St. Louis, 1918.

**The Hodgen Wire Cradle Extension Suspension Splint**, by Frank G.

Nifong, M. D., F. A. C. S., with an introduction by Harvey G. Mudd, M. D., F. A. C. S.

**Tropical Surgery and Diseases of the Far East**, by John R. McDill, M. D., F. A. C. S.

**A Treatise on Cystoscopy and Urethroscopy**, by George Luys. Translated and edited, with additions, by Abr. L. Wolbarst, M. D.

**Headaches and Eye Disorders of Nasal Origin**, by Greenfield Sluder, M. D.

**The Wassermann Test**, by Charles F. Craig, M. D.

**PAUL B. HOEBER**, New York, 1918.

**The Seriousness of Venereal Disease**, by Sprague Carlton, M. D., F. A. C. S.

**Neurological Clinics**. Edited by Joseph Collins, M. D.

**Symptoms and Their Interpretation**, by James Mackenzie, M. D., LL. D. Third edition.

**Clinical Disorders of the Heart-Beat**, by Thomas Lewis, M. D., F. R. S., D. Sc., F. R. C. P.

**W. B. SAUNDERS COMPANY**, Philadelphia and London, 1918.

**Diseases of the Male Urethra**, including Impotence and Sterility, by Irvin S. Koll, B. S., M. D., F. A. C. S.

**Clinical Diagnosis**, by James Campbell Todd, Ph. B., M. D. Fourth edition, revised and reset.

**LEE & FEBIGER**, New York and Philadelphia, 1918.

**A Manual of Otology**, by Gorham Bacon, A. B., M. D., F. A. C. S.

**P. BLAKISTON'S SON & CO.**, Philadelphia, 1918.

**Naval Hygiene**, by James Chambers Pryor, A. M., M. D.

**F. A. DAVIS COMPANY**, Philadelphia, 1918.

**Principles and Practice of Infant Feeding**, by Julius H. Hess, M. D.

**B. W. HUEBSCH**, New York, 1918.

**The Small Family System. Is It Injurious or Immoral?** by C. V. Drysdale, D. Sc. Prefatory Notes by Dr. B. Dunlop and Dr. Wm. J. Robinson.

#### MISCELLANEOUS:

**Biennial Report of the Louisiana State Board of Health to the General Assembly of the State of Louisiana (1916-1917)**. (Hauser Printing Company, New Orleans, La.)

**Weekly Bulletin of the Department of Health of the City of New York**. June 8, 1918.

**The Twenty-Seventh and Twenty-Eighth Annual Reports of the Eye, Ear, Nose and Throat Hospital**, (1916 and 1917).

#### REPRINTS.

**Venereal Prophylaxis; A Cosmetically Perfect, Bloodless Circumcision; A Sane and Rational Method in the Treatment of Acute Gonorrhea; Food for Thought Concerning Our Venereal Problem; Localizing Posterior Gonorrheal Urethritis**, by Henry J. Millstone, M. D.

**Un Nuovo Metodo di Gastrectomia Con la Ricostruzione Anatomico-Fisiologica Dei Rapporti Fra Stomaco ed Intestino; Perforazione Dello Stomaco e Dell' Intestino; La Sterilizzazione Delle Piaghe; L'Esclusione del Piloro per Mezzo di Bandelette Elastiche; Emostasi per Mezzo di Palloncini Elastici**, per il Prof. Dott. Angelo L. Soresi.

## MORTUARY REPORT OF NEW ORLEANS.

Compiled from the Monthly Report of the Board of Health of the City of New Orleans, for July, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever .....	7	7	14
Intermittent Fever (Malarial Cachexia) .....	1	1	2
Syphilis .....	2	8	10
Pellagra .....	2	4	6
Scarlet Fever .....			
Whooping Cough .....	14	2	16
Diphtheria and Croup .....	2		2
Influenza .....	1	4	5
Cholera Nostras .....			
Pyemia and Septicemia .....			
Tuberculosis .....	38	48	86
Cancer .....	19	10	29
Rheumatism and Gout .....	1	1	2
Diabetes .....	1		1
Alcoholism .....	1		1
Encephalitis and Meningitis .....	1	1	2
Locomotor Ataxia .....			
Congestion, Hemorrhage and Softening of Brain .....	25	10	35
Paralysis .....	3	3	6
Convulsions of Infancy .....	1	2	3
Other Diseases of Infancy .....	24	13	37
Tetanus .....	1	3	4
Other Nervous Diseases .....	4	1	5
Heart Diseases .....	52	50	102
Bronchitis .....	1	1	2
Pneumonia and Broncho-Pneumonia .....	10	15	25
Other Respiratory Diseases .....	1	1	2
Ulcer of Stomach .....	2		2
Other Diseases of the Stomach .....	4	3	7
Diarrhea, Dysentery and Enteritis .....	27	16	43
Hernia, Intestinal Obstruction .....	4	7	11
Cirrhosis of Liver .....	8	4	12
Other Diseases of the Liver .....	3		3
Simple Peritonitis .....			
Appendicitis .....	5	1	6
Bright's Disease .....	22	24	46
Other Genito-Urinary Diseases .....	10	9	19
Puerperal Diseases .....	2	4	6
Senile Debility .....			
Suicide .....	4	2	6
Injuries .....	19	12	31
All Other Causes .....	12	4	16
TOTAL .....	334	271	605

Still-born Children—White, 20; colored, 23; total, 43.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per Annum for Month—White, 14.31; colored, 31.27; total, 18.90. Non-residents excluded, 17.18.

## METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure. . . . . 30.01  
Mean temperature. . . . . 83  
Total precipitation. . . . . 2.03 inches  
Prevailing direction of wind, Southwest.



# NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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Vol. LXXI

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No. 4

## EDITORIAL

### THE PHYSICIAN, THE ARMY, AND THE CIVIL POPULATION.

There must be a great readjustment of medical practice in the months to come. War has disarranged almost every phase of the professional activities of physicians. Medical colleges, hospitals, industries which employ doctors, and the civil population have felt the pressure of deprivation of the services of normal times.

The military demands, of necessity, have drawn upon the medical profession irrespective of any consideration of other needs, because

the first and most important thing has been a proper and adequate provision for the army and navy organizations. The wave of early drafts on the profession has not yet spent its force, and, with the new man-power law, a still greater proportion of doctors must qualify for military service. What number may ultimately remain at home cannot yet be calculated.

With an army of four million there will be needed something like forty thousand medical officers. Of these there are enrolled already about twenty-five thousand. Aside from the actual needs of the troops, overseas and in process of organization, there will be various activities related to the operation of army preparation in which medical men will be needed. While it is true that a considerable part of such service may be performed at the same time that civil obligations are being fulfilled, with the growing ramifications of related services, there will be an increasing demand for doctors. The effort is being made to conserve the medical schools for teaching students, and there is every indication that the students themselves will be directed to continue at college so as to provide the material for making medical graduates, but the outlook is none the less far from encouraging.

Hospitals everywhere are short of interns, and their visiting staffs have been depleted as well. At the same time, the loss of some 20 per cent of the profession from the community generally has made the work of those who remain much more onerous. The division of time in hospital and civil services is more difficult than formerly. The needs in the large cities increase all the time, and there is no considerable supply of physicians in the cities upon which the country districts, also sorely in need, may draw.

The Volunteer Medical Reserve Corps has opened a way for adjusting the regularity of distribution of service throughout the country by arranging for a proper classification of all physicians who are not privileged or able to do entire military service. When the whole country has been surveyed and the doctors card-indexed for service the need of one community may be met by the distribution of men from those communities better supplied. This will not entirely meet the situation, although it is a temporary succedaneum.

The individual State has not appeared to concern itself much in this question; perhaps it may not be amiss to connote the fact that most States do not concern themselves at any time with matters related to the medical profession. This whole question, however,

is not one of the medical profession, for it concerns the general public much more than it does the class of medical men, whether they are taken collectively or as individuals.

The State Committees of Defense have actively considered the supplies of food and of other material things. It properly has maintained a busy interest in industries. Many activities within the State have come to the notice of such State committees. The essential and entire problem of the health of the people has not been a serious part of their work. The boards of health perform a large function, within their province of regulating the sanitary conditions of communities and in the prevention of disease, but these health officials have nothing to do with the care of the sick.

In every well-organized State there exists a fundamental and constitutional provision for State medicine. This usually includes all hygienic provisions under the direction of health boards and regulated by sanitary codes. It also provides for the enactment of laws which regulate the right to practice medicine, and it, moreover, fixes the obligation of the doctor to the State, which compels the payment of a tax or license to engage in the pursuit of the calling or occupation of a physician.

In return, the physician enjoys the privileges of a citizen and the legal right to practice. Through the corporation laws of the State, he may, with others, organize an association for the betterment of the profession. There is nowhere a combination of the profession and the people for the care of the sick—except as provided in proletariat institutions.

The time is ripe for State supervision and provision for the care of the sick outside of hospitals.

The idea is not new. The JOURNAL has discussed the point for the past fifteen or twenty years, but hitherto only academically; it is time now to put the ideas into practical application.

There are communities in all States now having no physicians in their midst; in some instances the physician is twenty or thirty miles away, and then too busy with his immediate community to be able to respond to an emergency at the minute he may be called. There are many persons able to pay small fees who find it difficult to get the attention they may need, because those better-to-do may have the first bid and call for the doctor.

The provision of doctors by the State for the needful services where they are most pressing seems a present solution.

A State medical service bureau could be organized and made effective in short order. All physicians engaged should be put on a civil service basis and regularly examined at intervals to determine their continued fitness. Such physicians might and should be paid reasonable living salaries, with an increase for relative rank in office and for time of service.

Such a State bureau of medical service would permit a prompt response to the need of any community—for a medical officer of the State could be sent to any community, to stay there until the needs of the place were satisfied.

There are enough medical men debarred from military duty to satisfy a fair-sized list of such emergencies, and when the war is over such a plan of health service for the sick may have proven itself sufficiently useful to become permanent.

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### **WAR NECESSITY.**

In order to obey instructions from the War Industries Board regarding conservation of paper, beginning this month the *JOURNAL* has had to reduce its size and change its style of make-up.

While coöperating with the Government in every patriotic move, we hope to avoid any inconvenience to our patrons, and feel that they will be with us in doing everything to help "win the war."

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## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### SODIUM CITRATE IN THE TREATMENT OF PNEUMONIA, WITH REPORT OF CASES.\*

By W. H. WEAVER, M. D., New Orleans.

In a paper on this subject, published in the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL, September, 1912, we showed that lysis could be induced in pneumonia by the administration of massive doses of sodium citrate.

Upon closer study of the temperature curves of a larger number of patients recovery seems to be by a mild form of crisis—that is, in many of the cases—without the usual high temperature and distressing conditions preceding the descent to normal. It seems that this form of treatment has not received the recognition we think it deserves, and we wish to give further evidence of its value.

Regarding the action of sodium citrate, it was shown in the original paper that it increases the fluidity of the blood, also its alkalinity, its antitoxic power and leucocytosis. Hence, it aids the natural physiological forces at work in the cure of the disease. Increased fluidity is necessary for the freer circulation of the blood through the solidified lung. Increased alkalinity increases antitoxic power as well as leucocytosis, while decreased alkalinity checks, if it does not completely destroy those important functions of the blood.

Reliable observations made by Lee, Dochez and others seem to show that the coagulation time in pneumonia is delayed, and viscosity is probably also reduced. This delay in coagulation time and reduced viscosity is as it should be, else there might be no recovery from pneumonia. We have during the hepatization of the affected area the deposit from the blood of a considerable portion of its fibrin. We would naturally expect that there would be less fibrin-forming elements left in the blood, and increased fluidity would be the result. High viscosity and coagulability at this time

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

would certainly not conduce to rapid recovery, while that condition of the blood did, no doubt, exist previous to and during the first stage of the disease. Hence, the more fluid the blood, the freer will be its circulation with the leucocytes and antitoxins through the lung capillaries.

After a few days, antitoxins have formed in the blood to a considerable extent. But if the circulation of the blood through the almost solid lung is not in some way facilitated by a sufficiently strong pressure, together with increased fluidity of the blood, there will be no recovery from pneumonia.

In this connection, the treatment of boils and carbuncles by use of sodium citrate as outlined by Sir Almroth Wright might be mentioned in support of this antitoxic and phagocytic stimulation in the presence of sodium citrate. Hence, from almost any point of view, the treatment by sodium citrate accords with known scientifically demonstrated truth.

Some potassium salts may have a similar action on the blood, but also have a depressant action, which excludes them from consideration, while sodium citrate can be tolerated in very large and continued doses without any disagreeable effects, except occasional catharsis, which should be controlled by an opiate without reducing the dose.

Sodium citrate is a salt of feeble alkalinity and may be given in sufficiently large doses to produce its effect without the least danger of harm, or even discomfort to the patient. Its taste is not disagreeable, nor does it disturb the gastric functions or appetite, and might be given in doses of one drachm every two hours if that much were considered necessary. It may be given with a little citric acid or lemonade in small quantities. The dose for an adult we have found to be forty grains every two hours. For children, the dose should be calculated from that amount.

Active catharsis should be established at the beginning of the treatment, as it will stimulate the protective glandular mechanisms. However, if the cathartic action of the sodium citrate appears, it should be checked and the dose maintained, rather than reduced.

If the fever is found to be very high and other symptoms alarming, bathing or a few doses of acetyl salicylic acid may be given until the temperature falls. In most cases, especially in children, the temperature, pulse and respiration will fall to normal inside of seventy-two hours. The clearing-up process in the lung is com-

pleted a little later, and until it is completed the citrate must be continued at the same dosage.

If there is no improvement in six to twelve hours, the dose may be increased, or given every two hours instead of every three hours. In adults, improvement often does not begin until the third day, or later if the dose has been inadequate.

It is highly probable that some who have tried this treatment and have been disappointed in its results have not given the citrate in large enough doses. In an adult, forty to sixty grains every two and a half to three hours must be continued day and night until the lung has entirely cleared. If the citrate is discontinued before complete resolution there will be an immediate relapse. This relapse will again clear away under the influence of the citrate. This will be absolute proof that the citrate is responsible for the recovery of lysis.

The cases reported at this time include my own, those of Dr. A. C. King and some by Dr. J. E. Pollock and Dr. E. L. King.

Ten cases were reported in the original paper, all of which recovered by lysis induced by the administration of sodium citrate. All of these cases reported in this paper, twenty-seven in number, recovered in the same manner.

It was our intention to wait until we had a much larger number of cases; however, we have recently had some successes that have made us more enthusiastic than ever, and have decided not to wait for the larger number.

We have employed the treatment in a few cases that are not included here. For example, in a case of terminal pneumonia—patient aged 91 years—we were able to induce her to take her medicine for about four days, when she rebelled and the treatment was discontinued. She appeared to be showing much improvement until the pulmonary obstruction proved too much for her weakening heart.

There are, no doubt, other limitations to this line of treatment. Cases known as septic pneumonia may not be amenable to the treatment, but we have had none, and we would be interested in seeing it tried out.

The first two cases reported are of post-operative pneumonia occurring in the Charity Hospital wards of Drs. E. D. Martin, A. C. King and M. H. Maguire.

**Case 1**—H. S. Nephrectomy for sarcoma of left kidney by Dr. E. D. Martin, assisted by Dr. M. H. Maguire, February 20, 1913; hemorrhage

extensive, requiring four pints of saline infusion on the table, followed by Murphy drip for forty-eight hours; developed pneumonia of the left lobe on the 21st. Sodium citrate in forty-grain doses was ordered every two hours; mustard locally and small doses of strychnia. Temperature went to 103.8° on the 24th, 103° on the 25th, and 102.8° to normal on the 26th; a mild crisis in about five days. The patient continued to decline, and died on March 5. Drs. Martin and Maguire considered it remarkable that this patient recovered at all from the pneumonia, considering the fact that her condition was extremely critical from the day she entered the hospital, and nephrectomy was done in the hope of giving relief. Her death was due to exhaustion, since she vomited nearly every kind of food given from the day of operation.

**Case 2**—R. H., age 50. Posterior gastroenterostomy performed February 3 by Dr. E. D. Martin, assisted by Dr. King, for carcinoma of the pylorus. Patient did nicely until February 6, when pneumonia, involving the entire lower lobe of the left lung, developed. Patient at once put on forty-five-grain doses of sodium citrate every two hours, and mustard plaster over affected lung. On the 9th the temperature began to drop by lysis, reaching normal on the 12th. Lung cleared up promptly and patient discharged on the 25th.

**Case 3**—R. S., age 4. Dr. A. C. King saw this case on the afternoon of the second day, May 7, 1913, and found the temperature 102°, respiration 70, pulse 160—a case of broncho-pneumonia, with mild delirium. Two grains of Dover's powder were given at night for excessive restlessness. Sodium citrate, fifteen grains, was given every three hours until temperature began to fall, when the dose was reduced to ten grains. Mustard jackets three or four times a day and alcohol rubs were employed. The temperature rose to 103.4-5° the evening of the second day, after which it gradually subsided to normal on the evening of the fourth day. Patient was well on the fifth day.

**Case 4**—Angelina Caredi, age 7. Dr. W. H. Weaver saw this patient May 5, 1913. Patient had whooping-cough for three weeks and fever for three days before calling a physician. Pneumonia of the left lower lobe was found. Temperature 104.6°, pulse 144, respiration 40; bloody expectoration and labored breathing. Sodium citrate in fifteen-grain doses was given every two hours. Temperature subsided on the second and third days, and remained normal after the fourth day of the treatment.

**Case 5**—Wm. Lignon, age 10. Was taken ill June 1, 1913. Pneumonia developed on the 4th, involving the right lower lobe. Temperature 105°, pulse 120, respiration 34. Sodium citrate was given in fifteen-grain doses every two hours, the temperature falling rapidly during the night of the 7th, to normal on the 8th.

**Case 6**—Mary Decorti, age 4 years. Broncho-pneumonia, January 10, 1914. Patient had severe cough for about a week, when she became rapidly worse—drowsy and breathing rapidly. When seen she had temperature 102½°, pulse 140, respiration 66. Placed immediately on sodium citrate, ten grains every two hours. On the third day she had entirely recovered.

**Case 7**—Mary Bivona, age 3½ years. Broncho-pneumonia, February 10, 1914. Temperature 103.2-5°, pulse 120, respiration 45. Ten grains of sodium citrate given every two hours brought temperature to normal by evening of the second day.

**Case 8**—Willie Graham, age 6. Lobar pneumonia, right lower lobe.

Trouble began February 16, 1914, with considerable pleuritic pain over the right lower lobe. Temperature  $104^{\circ}$  pulse 132, respiration 50. Sodium citrate, fifteen grains, every three hours. Patient recovered on the fourth day.

**Case 9**—J. Ryan, age 65. Pleuro-pneumonia. February 20, 1914, was taken ill with severe pain in left side. Temperature, when seen on the 21st, was  $102.2-5^{\circ}$ , pulse 108, respiration 30. Strapping was applied. On the 22d, still complained of the pain; cough and rusty sputum; most of lower lobe on left side was solid. Sodium citrate in thirty-grain doses every two hours was given, with morphin for the pain. Solidified area extended to upper lobes. Patient did badly until March 4, when he died, without signs of improvement. This patient had been a very hard drinker all his life, and we could hardly expect any other result.

**Case 10**—Christ Harris, age —. Lobar pneumonia, March 8, 1914. Patient seen evening of the first day by Dr. A. C. King, having a temperature of  $104^{\circ}$ , pulse 132, and respiration 48. Sodium citrate was given in twenty-five-grain doses every two and a half hours, causing a gradual reduction of temperature to normal on the night of the fourth day.

**Case 11**—Angeline Caredi, age 8, was seen on March 14, 1914, by Dr. King. Found the temperature  $102.2-5^{\circ}$ , pulse 136, respiration 40, with broncho-pneumonia following measles. The left lower lobe was largely affected with patches in the right lung. Sodium citrate was given every two and a half hours, temperature rising to  $103^{\circ}$  on the third day and normal on the evening of the fourth day.

**Case 12**—W. Zevengue, age 6, was seen by Dr. King, June 8, 1914, on the second day of his illness, having a temperature of  $104^{\circ}$ , pulse 136, respiration 50, and partial consolidation of the left lower lobe. He was given seven and an eighth grains of sodium citrate every two and a half hours, which had no effect on his condition. On the night of the fifth day of the disease the temperature was still  $104^{\circ}$ , pulse 148, respiration 60. The dose was increased to fifteen grains. The temperature, pulse and respiration came to normal on the night of the seventh day of the disease.

**Case 13**—Lobar pneumonia. Mary Domino, age 11 years, was seen by Dr. Weaver, February 28, 1914, having a chill, with temperature of  $104^{\circ}$ , pulse 120, respiration 36. Sodium citrate was ordered in twenty-grain doses every two and a half hours. A few doses only were given, with a reduction of the temperature to  $102^{\circ}$ . No medicine was given on March 2, which was the third day of the disease, temperature rising to  $104^{\circ}$ . At the morning call it was insisted that the medicine be given regularly night and day until complete recovery. The temperature, pulse and respiration went to normal on the fifth day of the disease, by what appeared to be a mild crisis.

**Case 14**—Broncho-pneumonia. Robt. Williams, age 6, was seen by Dr. J. E. Pollock, November, 1913. Cough and fever began two days previous to calling the doctor. Now dullness over right lower lobe. Temperature  $102^{\circ}$ , pulse 140, respiration 50. Sodium citrate was given every two hours in ten-grain doses. Patient was discharged as cured on the 21st, after two days of treatment.

**Case 15**—Lobar pneumonia. Helen Smith, age 18 months, was seen by Dr. J. E. Pollock, January 30, 1914, having a temperature of  $102^{\circ}$ , pulse 140, respiration 60. Sodium citrate was given in fifteen-grain doses every two hours. January 23 the temperature was normal and recovery uneventful.

**Case 16**—Helen Harvey, age 14 months, was seen by Dr. Weaver, April 8, 1914, having a broncho-pneumonia affecting mostly the left lower lobe. Temperature was  $104^{\circ}$ , pulse 140, respiration 66. Sodium Citrate was given every two and a half hours. The temperature went to  $105^{\circ}$  on the third day and night, when the dose was every two hours. On the fourth day the temperature came to  $104^{\circ}$ , on the fifth day to  $102.8^{\circ}$ , on the sixth day to  $99^{\circ}$ , and on the morning of the seventh day to normal.

**Case 17**—J. Wall, age 18, was seen by Dr. Weaver on April 28, 1914, having become ill the day before, with a temperature of  $104\frac{1}{2}^{\circ}$ , pulse 120, respiration 45, complaining of much pain over the right lower lobe. April 28, sodium citrate in thirty-five-grain doses was given every two hours. April 30, the temperature was  $103^{\circ}$ ; May 1,  $102\frac{1}{2}^{\circ}$ ; May 2,  $97\frac{1}{2}^{\circ}$ , with pulse of 66.

**Case 18**—Lottie Kraft, age 14, was seen by Dr. Weaver, September 26, 1916, having a temperature of  $104^{\circ}$ , pulse 120, respiration 32; having a slight cough, but examination of the lungs was negative; pneumonia suspected. Gave wine of ipecac, five minims; sodium citrate, fifteen grains every three hours, and calomel purge on the 27th, when the temperature was  $99\frac{1}{2}^{\circ}$  in the morning; evening temperature,  $101\frac{1}{2}^{\circ}$ . September 29, examination showed invasion of the left lower lobe. Sodium citrate was increased to twenty grains every two hours. Temperature  $101\frac{1}{2}^{\circ}$  evening till October 3, when it fell to  $99^{\circ}$ , and October 5 to normal.

**Case 20**—Salome Kappler, age 26, was seen by Dr. Weaver on October 16, 1916, having temperature of  $103^{\circ}$ , pulse 108, respiration 34, with pain in the right side. October 27, temperature  $102\frac{1}{2}^{\circ}$ . Examination showed crepitant râles over left lower inch of left lower lobe. Sodium citrate was given every three hours in thirty-grain doses. October 18, complete invasion of the lower lobe, with rusty sputum, and evening temperature  $102\frac{1}{2}^{\circ}$ . October 19, the fourth day, the temperature was  $101\frac{1}{2}^{\circ}$ ; October 20, temperature  $100.1-5^{\circ}$ ; October 20, normal. Recovery was complete on the sixth day.

**Case 20**—Madeline H. Behenna, age 3 years, as seen by Dr. Weaver, October 17, 1916, having a temperature of  $102^{\circ}$ , pulse 110, respiration 48; cough, and râles over both lungs. Sodium citrate was given in five-grain doses every three hours. Temperature went to  $103^{\circ}$  on the 18th,  $103\frac{1}{2}^{\circ}$  on the 19th. On October 20, sodium citrate was increased to ten grains every two hours. On the 21st the temperature, after having been around  $103\frac{1}{2}^{\circ}$  until afternoon, went to  $102^{\circ}$  in the evening. On the 22d the temperature was  $100\frac{1}{2}^{\circ}$ ; on the 23d it was normal, and remained so.

**Case 21**—Miss Fleury, age 16 years, a patient of Dr. King's, January 16, 1917, developed pneumonia of the left lower lobe, having a temperature of  $99\frac{1}{2}^{\circ}$  the first evening,  $101\frac{1}{2}^{\circ}$  the second morning,  $100^{\circ}$  the third day,  $99\frac{1}{2}^{\circ}$  the fourth, and normal the fifth, under twenty-grain doses of sodium citrate.

**Case 22**—Charlene Martin, age 5 years. September 13, 1917, broncho-pneumonia, with temperature of  $103\frac{1}{2}^{\circ}$  the second morning,  $103^{\circ}$  the third morning, and  $103\frac{1}{2}^{\circ}$  the fourth morning, when thirty grains of sodium citrate were begun every two hours. Respiration 48, pulse 136. The fifth day the temperature came to  $101\frac{1}{2}^{\circ}$ ; the sixth,  $100\frac{1}{2}^{\circ}$  in the morning, and  $99^{\circ}$  in the evening; normal on the seventh day.

**Case 23**—Sidonia Irvine, age 33, weight 215 pounds, seen November 21, 1917. Had been ill, with high temperature, three days before the treatment was instituted. Temperature  $103.1-5^{\circ}$ , pulse 132, respiration

45. Pneumonia of the right middle and lower lobes, derilium, labored breathing, cough, with rusty sputum. Sodium citrate in thirty-grain doses was continued night and day. Temperature fell quite rapidly from 103.1-5° to 99° in about thirty-six hours, and to normal in another thirty-six hours.

**Case 24**—Marjorie Huber, age 15. Pneumonia of the left lower lobe, with pleuritic effusion. This patient has had a severe case of mitral disease, with large hypertrophy and dilatation, following an acute attack of rheumatism when about seven years of age. Her condition was so distressing that it was deemed absolutely necessary to take her to the hospital in order to give her a chance for her life. Accordingly, on the fifth day of her illness, she was sent to Hotel Dieu. About twelve ounces of the pleuritic effusion were removed, after which her respiration was easier, at about 30, and pulse 120. Deep-seated pneumonia had been suspected for the two previous days, and was now fully developed.

Treatment included mustard jackets, strychnin sulphate, 1-50 grain every six hours, and sodium citrate, twenty grains every three hours. The temperature varied between 104° and 100° until the tenth day, when forty grains were given every two and a half hours, after which it averaged lower until the thirteenth day, when it came to normal, and remained there. In addition to the above, fifteen drops of tincture of digitalis were given at night. She remained in the hospital for nineteen days. The first four days of her treatment she received twenty grains of citrate every three hours, and made no improvement, until the dose was doubled and given every two and a half hours. In four days the temperature was normal. Our judgment in this case was that the pneumonia would be fatal, and no hope was had until after the citrate was increased to forty-grain doses, when she made a rapid and uneventful recovery.

**Case 25**—Florence Leblanc, age 2 years, was ill four days when first seen, February 1, 1918. Her temperature was 103.3-5°, pulse 140, respiration 60, and extremely labored and jerking; drowsy, and apparently in a very desperate condition. Fifteen-grain doses of sodium citrate were ordered every two hours, night and day. On the third day the temperature had come to normal and cough not troublesome, but continued, with evening temperature for four days longer before recovery was complete.

**Case 26**—Baby Ruiz, age 19 months, a near neighbor of Case 25, was in exactly the same condition, except that the temperature ran higher by one degree. Fifteen grains of the drug were given every two hours, with precisely the same effect as in Case 25, except that complete recovery occurred sooner.

**Case 27**—Reported by Dr. E. L. King. C. Duncelli, boy, 8 years of age. When called, found consolidation of the left lower lobe, temperature ranging about 104°. Sodium citrate, five grains every two hours, induced rapid recovery, with normal temperature, by the fourth day.

Together with the ten cases previously reported, we have thirty-six cases of rapid recoveries from a disease which we have all known as serious and fatal in at least 80 per cent of the cases.

In the cases of terminal pneumonia of the aged, we do not expect recovery; however, a pronounced improvement in the condition of the patient may be seen.

In broncho-pneumonia the dosage must be larger than in the lobar type, owing to the difference in the character of the disease, the whole bronchial system being involved in the violent inflammatory action, as compared with the localized blocking of a portion of one lung. While some of the cases of broncho-pneumonia will recover quickly on a medium dose, others will require the dose to be greatly increased, when the recovery will be quite as rapid. Recovery is largely a question of dosage.

A number—the usual percentage of these thirty-seven cases—by all the rules of prognosis should have been fatal. The morbidity in all of them was greatly reduced. This influence over the morbidity of the cases treated with sodium citrate is alone sufficient reason for its use, while the mortality rate must be demonstrated in systematic hospital practice.

#### DISCUSSION ON THE PAPER OF DR. WEAVER.

**Dr. John M. Barrier, Delhi:** I would like to say a few words on this subject. I do not rise to approve or disapprove of this paper, but I just want to say a few things.

Doubtless some of you are familiar with the Bible story of David when he went out to meet the giant Goliath. Many of his friends suggested to him that he put on an armour, a new or the latest improved instrument of warfare, but David said, "I am going to take the instrument that I am most familiar with, and that is my old sling-shot." (Laughter.)

The point I wish to draw from that is this: As you are all aware, in studying the history of pneumonia from the time that the Father of our Country fell a victim of this disease to the present time, the mortality statistics have varied but little. Next year somebody will come here and read a paper advocating other medical treatment of diseases, and he may be able to produce as long an array of successful cases as the gentleman has done who has just read this paper. I do not wish to discredit his paper. I am glad that it has been read, for it gives us one more medicine to prescribe in pneumonia. (Laughter.) And the suggestion that I offer to you is that when you have failed in the remedies that you have been accustomed to, then use sodium citrate. I remember reading about this many years ago. I said to myself, "I am going to let well enough alone; I am going to stick to what I know and to what I am accustomed to," so that I have had other sling-shots that I have stuck to, and you all know, particularly those of you who have greater reputations as internists than I have, that if there is any disease on earth that is more fatal than pneumonia I do not know what it is, and more patients have been killed by overmedication in pneumonia than in any other disease. From the time of the death of the Father of our Country until this time the treatment of pneumonia has varied from bleeding to the use of expectorants and all nauseating medication that any human being has ever devised, and yet, after all, gentlemen, it is purely a matter of ventilation, sanitation and good common-sense, and it does not make much difference whether you use any drugs or not.

**Dr. A. C. King, New Orleans:** I do not think any subject so important as pneumonia ought to go by without a free discussion. There are three diseases that always appeal to the practitioner, one of which is typhoid fever, the other is appendicitis, and the other is pneumonia, and you can always create a discussion if you get the crowd started right.

I always feel, when it comes to the treatment of pneumonia, as an old friend of mine, who told me on one occasion that he had no trouble in making a diagnosis, but that he did have lots of trouble to find a medicine to fit the case. Most any one can make the diagnosis of pneumonia, but the great trouble is to find a medicine to fit the disease. Serum has not proved, so far, efficacious in diphtheria, scarlatina and some other diseases, so we will pass that by. I have noticed Rosenow has utilized pneumotoxin with pretty fair results. He has reported a few hundred cases in a recent issue of the **Journal of the American Medical Association**. That treatment is still in its infancy, but the article is entertaining.

In regard to the particular treatment Dr. Weaver has been using, I am perfectly free to admit that in the beginning I was skeptical, because I was in exactly the same predicament that Dr. Barrier is now—I do not see any sense in giving medicine to cases of pneumonia, particularly in cases of old people and alcoholics. We know the terrific mortality in cases of that type. Children will get well of pneumonia by themselves if you let them alone long enough and do not overmedicate them. Since I have been using this sodium citrate I have been much gratified with the result. You may say a child with pneumonia will recover anyhow. I will admit that, but the point is this: if you are able to shorten the time of illness in these little folks you shorten a great deal the trouble on the part of the parents and you have benefited the children. Now, if it is possible to bring about early resolution, as this particular medicine will do, and I can testify to it, you have shortened the time of sickness, and you have done that child a favor. You have doubtless noticed that in the reports of some of these cases resolution occurred on the third, fourth or fifth day.

The first case I saw of this type was a boy, fourteen years of age, with lobar pneumonia, and that boy was well on the fourth day. I have never seen that occur before. I am willing to confess that I was amazed at the rapidity of recovery. The secret is simply in the dosage and remembering that all it does is to lessen the viscosity of the blood. If anything will do that it will help, and that is the secret of the early convalescence.

One case Dr. Weaver did not finish reporting in detail was a case of double pneumonia with a bad heart and fluid in one pleural cavity. I know the fluid was there, because I aspirated about a pint of it. It was perfectly wonderful that this child recovered at all. I have never seen a case like that before or since. The child was in a critical condition from the first day we saw her, on account of the heart lesion. Both lungs are clear to-day and she is well, and I cannot explain it. We gave the child tremendous doses of sodium citrate, large doses of digitalis and good nursing.

I do not like to be skeptical of any particular medicine, but since I have been using sodium citrate I am satisfied that there is nothing in a medical line that is better. I have tried serum faithfully, but my results have not been satisfactory. I believe, however, if we could possibly combine outdoor methods of treatment with any medicine our results would be better. I am satisfied of that. The great trouble is that we

have not been able to induce our people to listen to us, as far as pneumonia is concerned, or any acute lung condition, like we have in converting them to the idea of being operated on early for appendicitis. People have been educated to undergo early operation for appendicitis. In the treatment of typhoid fever we are now using serum, better nursing and are using better food. You all know that in appendicitis we operate early in the acute cases, and operate between attacks in the chronic cases, and most of them get well. The time was when the mortality from appendicitis cases and typhoid fever was terrific. It is much better now, and I believe the time is coming when the mortality in cases of pneumonia will be materially improved by the use of sodium citrate, or possibly with the use of some serum that we are not as yet acquainted with.

**Dr. R. L. Jones, Rayville:** This is a timely subject. Considering the fact that during the past winter the general practitioner has had probably fewer cases of pneumonia and fewer complications than he has had in a number of years, I am glad to hear this subject discussed.

As my friend and co-worker, Dr. Barrier, has expressed it, there are a number of cases of pneumonia, and especially in children, that on the sodium citrate treatment or no treatment will terminate in crisis in a few days. But there are other cases, possibly due to a lowered condition of vitality, to a more virulent infection or to some other cause, in which it is purely a question of the conservation of the vital forces, and the sodium treatment in this class of cases, in my experience, will give you beautiful results in some instances. I have been using it for two years, but those cases that have a more virulent infection or very lowered vitality require something more than sodium citrate. It requires sustaining the vital forces.

I was glad to hear digitalis mentioned. If there is any one drug for which I have a most profound respect in pneumonia it is digitalis. In those long-drawn-out pernicious cases, especially if the infection is profound, alcohol in some form is beneficial. I prefer for my patients good whiskey, and if the temperature is high I give them digitalis and whiskey combined. I give them the open air, judicious feeding and careful nursing, together with carbonate of creosote, which will pull a patient through a protracted, tedious pneumonia, and you will avoid, in a number of instances, pus in the pleural cavity which you would otherwise have.

**Dr. Charles L. Eshleman, New Orleans:** I am very glad to have heard Dr. Weaver's paper on this subject. I have not tried the sodium citrate treatment. It has not been my sling-shot. I have no sling-shot for pneumonia. I approach a pneumonia case with the firm, fixed opinion that I am dealing with an acute, specific infectious disease, with the absence or presence of organisms circulating in the blood, and that something is going to happen in the next twenty-four hours or in the next three weeks that is going to neutralize these poisons, and I am depending upon that as to whether the patient is going to get well or die.

I am perfectly confident that I have seen cases of pneumonia get well in twenty-four hours by the neutralization of these poisons. How they are neutralized, I do not pretend to say. On the neutralization of these poisons depends the cure of pneumonia or death from it within twenty-four hours or two or three weeks. If sodium citrate in some way will assist the body, or it is going to help to neutralize these poisons that are causing the disease, it will give us good results.

I feel that in the next few years, through the work of Rufus I. Cole,

of the Rockefeller Institute, we will be furnished with a serum or an antitoxin which will neutralize the poisons in pneumonia. He has already isolated four different strains of pneumococci, and in strain No. 1 he has already been able to make a serum which so far has given the best results in the treatment of this disease, provided, of course, we are dealing with strain No. 1 in the particular case under treatment. If serum No. 1 is given to cases in which we have strain No. 3 or No. 4 as the infecting organism, we are not going to get results. So, I am looking forward to a valuable sling-shot from Dr. Rufus I. Cole in the treatment of pneumonia through serum, and I believe it is going to be the fact that all other infectious diseases will be cured by sera, and not by chemical or pharmaceutical products.

**Dr. W. H. Weaver**, New Orleans (closing): I do not know that I can add very much to what has been said. A question has been asked as to the mode of administration. We begin with a dosage of forty to forty-five grains every two or three hours. That can be combined with any vehicle you wish. If you want to give digitalis with it you can do so, or you can give it separately. There is no particular vehicle required for sodium citrate. Water is sufficient.

We know that the great majority of cases of children with pneumonia recover from the disease. I will admit that, but I had never been able, before I began the use of sodium citrate, to cure cases of pneumonia in children with as little trouble and with as little sickness and with as little worry to the parents and myself as I have been since I have been using it. The very fact that we can reduce the morbidity in the length of time the child is sick—or adult, either—convinces us that we are doing good. We know that sodium citrate increases the fluidity of the blood, makes it easier for it to be pumped through the solid portion of the lung, and it increases the antitoxic power. That was shown by Metchnikoff and others, and also its phagocytic power is increased. If you increase the acidity of the blood you check the antitoxic power and phagocytic action. This is plainly shown in the scientific investigations that have been made. If now we do increase the fluidity of the blood, so that normal antitoxins are developed in the blood in the course of a few hours or a few days, if we increase the circulation of that highly antitoxic blood through the lung, we hasten recovery. If now we inject antitoxin into the blood, at the same time giving sodium citrate, we can get favorable results. I believe it was that class of cases Dr. Rosenow failed to cure, but he has reduced the mortality in about one-half the cases he has been treating. If he adds sodium citrate to the treatment he is using, he will force the antitoxin into the lung and get better results.

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## SHELL-SHOCK—PSYCHONEUROSIS OF WAR.\*

By C. S. HOLBROOK, M. D., Jackson, La.

In the summer of 1914 the inertia and the peace of the world were disturbed by a tremendous paroxysm, and forces were generated which will exert an influence on the human race for all times.

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Treaties have been considered worthless, national boundaries have been disregarded, wanton murder has been committed on land and sea, and, as a result, three-fourths of the human race is engaged in waging the most cruel and most nerve-straining war that the world has ever known.

In wars of remote, and even of recent times, the medical adviser and medical information have been given but scant consideration, and as a consequence disease caused far more casualties than did the missiles of war. The Spanish-American war is a sad but forceful reminder of the havoc disease has wrought in military projects. The medical division of the army organization to-day is larger in personnel and equipment, and is given a more important place in all military plans than ever before. As a result, the ratio of casualties from disease and from wounds has been reversed.

The war in Europe has brought to light several new diseases, and many old but rare maladies have appeared in such number and in settings so new and strange that they, too, without much analysis are often considered as quite new.

Hygiene and preventive medicine have largely controlled typhoid and other camp scourges. Surgery has seen many advancements, new principles and methods have been born, while antiseptic surgery and other methods long ago relegated to the discard have again become very important. In the realm of general medicine we see such new diseases as trench fever, trench nephritis and trench jaundice. In the province of nervous and mental diseases there has been as great or greater progress than in any other field. During the last three years a mass of literature pertaining to mental and functional nervous disturbances resulting from war-strain has accumulated, and from this information the following article has been abstracted.

This is the first war in which neurologists and psychiatrists have been called upon to play a major part. In the past the soldiers suffering from mental and nervous disturbances have been treated by the military surgeons in general or surgical hospitals; later, the chronic cases were sent to hospitals or asylums for the chronic insane. There is this notable exception: In the Russo-Japanese war mental diseases were separately cared for by specialists from the firing line back to the mother country. At present the neuropsychiatrists see patients in and shortly behind the trenches, and cases requiring their attention are sent to special hospitals, where

a very large percentage is cured and some even sent back to the firing line.

"Shell-shock" is a term that has been given to a variety of mental and functional nervous disorders and does not lend itself to scientific analysis, but, in the jargon of the trench and hospital, it is used to designate the functional nervous disorders resulting from the strain of war. The term is a blanket diagnosis, and all degrees of disturbance, from very mild hysteria to such psychoses as general paralysis, are often placed in the same category.

"Shell-shock" is not a new disease, but is a psychoneurosis, which has its counterpart in civil life in such conditions as hysteria, neurasthenia and psychasthenia. The functional neuroses and hysterical disorders following terrible accidents are similar to the psychoneurosis of war, the disturbances now called "shell-shock." The real importance of the medico-military problem cannot well be overestimated, since these disorders are responsible for not less than one-seventh of all discharges for disabilities from the British Army, or one-third of all discharges if discharges for wounds are excluded. Ten per cent of disabled soldiers who are sent to Canada suffer from mental and nervous disorders; the majority are "shell-shock" cases.

A few typical histories will be of interest at this point and will illustrate the characteristics of these disorders.

The following cases are given by Lieut.-Col. Mott:

**Case No. 1.** A captain, aged 20, was admitted in a state of restless motor delirium; he moved continually in bed, sat up, passing his hand across the forehead as if he were witnessing some horrible sight, and muttering to himself, yet, when interrogated, he answered quite rationally. This motor delirium was associated with the continuous effects on the conscious and subconscious mind of the terrible experiences he had gone through. His whole company had been destroyed, and while talking to a brother officer the latter had half his head blown off by a piece of shell. The patient improved very much, but a relapse occurred after a night disturbed by terrifying dreams. He recovered sufficiently within a week to go out.

**Case No. 2.** A man was sent down from the clearing station, February 10, 1916; he had been blown up and buried; he was blind, deaf and mute. He was sent from France to England, February 29. When first seen (by Lieut.-Col. Mott) he was lying in bed on his side, with his legs curled up. He took no notice of any sound, however loud; he did not speak; and he could not see. This was the condition noted while he was in hospital in France. Pupils reacted to light, nor did he reflexly close the eyes when a blow was suddenly aimed at the face. The slightest touch, however, aroused an immediate defensive movement or withdrawal of the part (showing a general hyperesthesia). He responded to the calls

of nature and did not wet the bed. The next day, while suffering from the pain of an enema, he somewhat suddenly regained his sight. He looked around in a bewildered manner, then burst into tears. The next day he was able to write. His powers of recognition were good, but he had a complete gap in his memory of the whole time he was in France.

Col. Wolfson relates the following case, among others, to show the neuro-psychopathic element:

**Case No. 3.** A corporal, aged 24, suffering from shell-shock, had been in active service two months when he was blown into the air by the detonation of a high-explosive shell. He was unconscious for ten hours, after which time he was dazed and suffered from marked tremors of the limbs, stuttering, frightful dreams and insomnia. His father was a psychasthenic and drunkard; his mother was alcoholic and finally committed suicide in a fit of depression; one brother had a "mental collapse"; another had "fits." One sister is a psychasthenic now, and two other sisters are nervous. One maternal cousin is an imbecile. The patient himself drinks to excess.

Capt. Elder reports the following case:

A soldier with one and one-half years' service felt great pain in the back and in the right leg two days after the great storms in Gallipoli, where he was in the trenches and up to his chest in water. The pain in his back improved, but the knee grew worse; it was flexed, stiff, every movement being attended by great pain. Skiagraph showed normal joint. He was brought into deep hypnosis when, under suggestion, he readily moved his knee in all directions. He walked the afternoon of the same day he was first hypnotized. The next day he was so restored that he danced. No further treatment was necessary.

H. C. Thomas gives the case of a man suffering from shell-shock who could read and write quite well, had no defect of speech, but had lost all his previous experience, and when taken to a zoo he attempted to stroke a lion and was ingeniously surprised to find that an elephant was larger than a cat.

Lieut.-Col. Meyers reports the following case:

A stretcher-bearer, eighteen months' service, was seen day after admission to hospital. Four days before admission he was "blown up" three times by "aero-torpedo trench mortars" while attending to the wounded in the trenches during an enemy attack. He said one had blown him "into the air," that another had blown him "into a dug-out," and that the third had "knocked" him down, but, nevertheless, he continued his work of carrying away the wounded. Two or three hours later, after he had finished, he was resting in a dug-out, when "everything seemed to go black" (probably he had a hysterical fit) and he became shaky, and remained so ever since. He appeared an honest and courageous lad, but was in a very nervous condition, making

irregular, spasmodic movements of head, arms and legs. There were well-marked coarse tremors and incoördination. The lightest touch of cotton-wool on the limbs and head provoked very lively movements; obviously he dreaded the next touch. A pin-prick started a series of most violent spasms, almost amounting to a convulsion. He also had visual hallucinations of bursting shells. Patient recovered in two months and returned to duty.

Mott points out that there are three effects of high explosives upon the central nervous system:

First. *Immediately fatal*, either from wounds caused by shell, rocks, etc., or the person may be buried by the explosion in a mine. Sometimes instant death has occurred in groups of men from the effects of shell-fire, yet no visible injury has been found to cause it.

Second. *Non-fatal wounds and injuries of the body*, including the central nervous system. (A large number of these cases do not show "shell-shock.")

Third. *Injuries to the central nervous system without visible injury*. This may happen through direct aerial compression or by throwing the soldier into the air or against the side of the trench, or by blowing a wall or a roof down on him, causing concussion. Also, he might be buried and partly asphyxiated or suffer from de-oxygenation of the blood through carbon monoxide poisoning. High explosives contain great quantities of this and other poisonous gases.

The detonation of a high-explosive shell creates an aerial compression equal to about ten tons to the square yard, and Lord Sydenham concludes that the forces generated are sufficient to cause instantaneous death by shock to the vital centers of the floor of the fourth ventricle. Another theory of instantaneous death is that the *decompression* that quickly follows the tremendous aerial compression accompanying the detonation of a high-explosive shell is sufficient to cause bubbles of nitrogen and carbon dioxide to be liberated from the blood-stream and that these bubbles act as fatal emboli in the brain.

Considerable research has been done by Lieut.-Col. Mott to show the relation of carbon monoxide poisoning to certain cases of shell-shock. He says:

"Many of the symptoms of carbon monoxide poisoning are similar to those which I have observed in shell-shock with burial. It must not be supposed that, in poisoning by illuminating gas or carbon monoxide poisoning, recovery is always complete, nor that the mental symptoms are always only of a transient nature. It often takes months for the

effects of the poisonous action of carbon monoxide on the heart and nervous tissue to wear off, and in certain cases the damage is permanent.’’

Mott has examined several brains from fatal cases of shell-shock and found them to correspond to the gross and micro-pathology of carbon monoxide poisoning, the principal lesions being punctate hemorrhages throughout the white matter of the brain. The fatal cases are very rare, so very little work as yet has been done along this line.

The present mode of warfare is quite different from what man has been accustomed to. The waging of war is not the chief occupation of man, but he has found it necessary to cross swords, to come to blows, in order to protect his rights. In the martial encounters of the past the opposing soldiers could at least work off their pent-up emotions in active service or in actual combat, but now trench warfare makes this quite the exception. Trench warfare subjects soldiers to such nerve-straining conditions as incessant bombardment, fear of death, the dread of fear, fear of being blown up or buried by a mine, horror, anguish, hunger, thirst and forced inactivity. Mott expresses it in this way:

“It must be obvious that, through all the sensory avenues, exciting and terrifying impressions are continuously streaming to the perceptual centers in the brain, arousing the primitive emotions and passions, and their instinctive reactions. The whole nervous system, excited and dominated by feelings of anger, disgust, and especially fear, is in a condition of continuous tension; sleep, the sweet, unconscious quiet of mind, is impossible or unrefreshing, because broken or disturbed by terrifying dreams. Living in trenches or dug-outs, exposed to wet, cold and often (owing to shelling of the communicating trenches) to hunger and thirst, dazed or almost stunned by the increasing din of the guns, disgusted by foul stench, by the rats and insects; tortures of flies, fleas, bugs and lice, the minor horrors of war, when combined with frequent grim and gruesome spectacles of comrades suddenly struck down, mangled, wounded or dead, the memories of which are constantly recurring and exciting a dread of impending death or of being blown up by a mine and buried alive, together constitute experiences so depressing to the vital resistance of the nervous system that a time must come when even the strongest man will succumb, and a shell bursting near may produce a sudden loss of consciousness, not by concussion or commotion, but as acting as ‘the last straw’ in an utterly exhausted nervous system, worn out by the stress of trench warfare and the want of sleep.’’

Most investigators have come to the conclusion that such predisposing factors as psychopathic and neuropathic constitutions are of more importance in causation of functional neurosis of war than is the final exciting cause.

Lieut.-Col. Mott refers to the characteristic make-up of nearly all of these cases of shell-shock. He writes:

“A large majority of shell-shock cases occur in persons with a nervous temperament or persons who were the victims of an acquired or inherited neuropathy; also, a neuropotentially sound soldier in this trench warfare may, from stress of prolonged active service, acquire a neurothenic condition. If in a soldier there is an inborn timidity or neuropathic disposition, or an inborn germinal or acquired neuropathic or psychopathic taint, causing a *locus minoris resistenciæ*, it necessarily follows that he will be less able to withstand the terrifying effects of shell-fire and the stress of trench warfare.”

Capt. Wolfson, from a study of one hundred cases of war psychoneurosis and one hundred cases of somatic injuries produced on the firing line, comes to these conclusions:

“Cases of neurosis are very rarely associated with external or somatic wounds. The vast majority of the psychoneurotic cases studied were among soldiers who had a neuropathic or a psychopathic soil. In 74 per cent of these cases a family history of neurotic or psychotic stigmata, including insanity, epilepsy, alcoholism and nervousness, was obtained, while a previous neuropathic constitution in the patient himself was present in 72 per cent.”

Landenheimer says that out of fifty-two cases of psychoneurosis there were in 90 per cent a predisposition, either by congenital constitution or by disease acquired before the war. Forsyth has found in all cases coming under his notice with symptoms which were more than mild and transitory a history of some earlier nervous troubles, slight or severe, was forthcoming. Capt. Eder did not find such a high percentage of neuro-psychopathic constitutions in the case of war-shock. In speaking of the British Army he says:

“In most cases the neurosis has arisen under the strain of quite extraordinary conditions. I would remind you that our army is not composed of fighting men, in the technical sense. The men come from the mill, the farm, the counting-houses, the country house; every trade is represented and every class. Thus, men brought up to a quiet avocation are suddenly, with scant training, called upon to make a new adaptation. In the stress and strain of their normal lives they would probably have been equal to any emergency. But for some—among the very best—the new conditions called out to them to strain themselves to the utmost, and that was just a little too much.”

E. F. Buzzard has made the following division of the psychoneurosis of war, which is quite clear:

First. *Pure exhaustive cases.* These are men starting with an average allowance of resistance power, after a more or less pro-

longed exposure to the strain of warfare, become restless, irritable, depressed, sleepless and lacking in attention and concentration. Finally some crisis occurs and the patient's resistance entirely goes.

Second. *Patients who have inherited neuropathic and psychopathic tendencies and in whom the process of exhaustion have excited these dormant tendencies into activity.* This class constitutes a large part of the whole.

Third. *Martial misfits.* These men have been compelled to join the army by public opinion; they have posed as normal individuals, but they are quite aware they cannot stand the strain of warfare.

Also we must recognize the individuals who suffer from concussion as the immediate result of a too close intimacy with a shell explosion and who react in the same way as patients do to a severe blow on the head—i. e., unconsciousness, easily tired, irritable, over-reactive to auditory and visual stimulations, lacking in confidence and concentration, and often depressed.

The effects of shell-shock vary so very much in severity and the functional disorders are so numerous that in a short paper these effects or symptoms can be little more than touched upon.

*Consciousness* may be affected in all degrees, from a slight temporary disturbance to complete unconsciousness, with stertorous breathing continuing until death. Some cases exhibit fugue or automatic wandering of the epileptic. Numerous records are to be found of soldiers wandering in an unconscious state many miles behind the lines.

*Memory* is partially or completely lost in many cases. The amnesia may include all former experiences or only certain unpleasant events.

*Speech defects* are seen in a fair proportion of cases and vary from stammering to mutism. Aphasia is somewhat more frequent than mutism.

*Hearing* is very often completely lost, at least for a time, and deafness is frequently associated with speech abnormalities.

Many different affections of *vision* are seen, from slight smoky vision to complete blindness. The visual field is restricted in some cases.

*Hyperesthesia* and *anesthesia* are frequently met with. They are always regional in distribution and not anatomical.

*Tremors* are common, and constitute a serious disability. Various tics and rhythmic spasmodic movements are sometimes present.

*Functional paralyses* are not at all uncommon; monoplegia, hemiplegia and paraplegia occur in nearly equal ratio. The gait is affected in many different ways.

*Phobias and obsessions* are of the most varied kind, but comparatively rare.

*The soldier's heart*, or cardiac neurosis, is a condition that worries every medical man in the army, but is not a new disease or peculiar to war. It is very closely related to nervous strain, if not entirely due to this condition.

The *intestinal and respiratory* systems supply their quota of functional nervous disorders. In fact, every function is subject to derangement, and many symptoms appear in the same patient.

*Dreams* are very frequently seen; these are a source of emotivity and may even lead to the establishment of a frank neurosis. They present to the mind the horror of events connected with the war.

About the psychology of the functional neurosis, much that is absorbingly interesting might be said, but would consume too much space at this time; my allotted time is drawing to a close. Forsyth described the mechanism in these words:

“At the time of trauma, whether it is concentrated in a few moments or spread over days and weeks, the situation to be met derives its psychical importance from the fact that it involves the risk of death. Against this, the instinct of self-preservation rebels, employing as its weapon the powerful emotion of fear. And this, it is not superfluous to recall, is a natural emotion and, therefore, ineradicable; its function, like that of its physical counterpart, pain, is protective, dictating an immediate flight from the danger arousing it. In the face, therefore, of the prospect of sudden death, fear strains all its powers to enforce an escape, and it is to be coerced only by a still more powerful effort of the will.”

In a well and normal individual, this situation does not give rise to anything greater than the realization of a situation which is very dangerous, but in a soldier who is potentially neurotic, the unconscious mind, whipped by fear, adapts stronger measures and the patient may become blind, deaf, or develop some paralysis, thus allowing him, with all propriety and self-respect, to withdraw from a situation which had become intolerable.

#### TREATMENT.

At the beginning of the war the psycho-neurotic cases were all sent from the trench to the base hospitals, and then to England.

Recently this plan has been much altered, and these unfortunate men are treated comparatively close to the firing line. Special hospitals have been organized in the zone of activity and psychiatric wards have been added to the large general hospitals. The trend of treatment is to give rather intensified therapy near the front and to send to England only those cases that will not recover in a few weeks or a few months.

Adrian and Yealland say: "Indeed, the most important part of the treatment of a functional case consist in making up one's mind that the case is functional."

Psycho-analysis has a place in the treatment of shell-shock cases, but, owing to the time required and the considerable experience required on the part of the physician, this method of treatment can be used only in a few cases. The results are excellent.

Hypnotism had many advocates during the first years of the war and the results were good, but recently this practice has lost much of its popularity.

There are three principles involved in nearly all methods: First, suggestion; second, reëducation; third, discipline.

"The aim of suggestion (Adrian and Yealland) is to make the patient believe he will be cured, and to lead him on from this to the belief that he is cured. Reëducation brings the desired function back to the normal by directing it until the bad habit is lost, and disciplinary treatment breaks down the unconscious resistance of the patient to the idea of recovery." The same authors state:

"Whatever form of treatment is employed, the patient must be convinced that the physician understands his case and is able to cure him. This idea should be fostered from the moment the patient enters the ward. The case is investigated as briefly as possible, and each physical sign is accepted as perfectly normal in the circumstances and not in any way interesting or obscure. The best attitude to adopt is one of mild boredom bred of perfect familiarity with the patient's disorder, and if the case has to be exhibited to any one else it is shown, not as anything unusual, but as a perfect sample of the type of case that is cured in five minutes by appropriate treatment."

The results of treatment have been quite variable. Percentages of cures have ranged from 26 to 98 percent. With appropriate treatment, given shortly after the neurosis develops, over 90 per cent should recover. Few of these patients should be sent to the firing line, where they will most surely have a recurrence, but should be discharged or assigned to home duty.

## DISCUSSION ON THE PAPER OF DR. HOLBROOK.

**Dr. L. Cazenavette**, New Orleans: The subject discussed by Dr. Holbrook is one of great interest. He has told us that one-seventh of the discharges in the British Army of men coming from the front were due to nervous causes, and naturally men who are at the head of the American Army were not long to realize the great necessity of selecting men to send to the front. By this I mean that the men, before they are sent to the front, have gone through various systematic examinations, neurologically and mentally, to be sure that these men are fit for the immense strain that they are to meet on the firing line. The draft men, as they are examined, go through the local boards, and from there to the advisory boards, and are sent to the various cantonments, and there they are gone over by men particularly trained in neurological and mental lines, and if for some reason the men are not found to be particularly fit for that severe strain they are not supposed to be sent to the front. In other words, the thought to be conveyed on this subject is a serious one. The essayist has told us of the seriousness of the symptoms, and our officers are doing all in their power to prevent such a catastrophe in our own men at the front.

**Dr. Carroll W. Allen**, New Orleans: I have been requested by Dr. Holbrook to make a few remarks on his paper. The introduction of high explosives into modern warfare has opened up an entirely new field in military medicine. Volumes have been written on the subject, and there are a great many points that are not clear, and they will not be until the close of the war, for a thorough analysis of medical data cannot be made until it has been accumulated and carefully gone through, and then only can a satisfactory explanation be offered.

In thinking over this matter I have come to some conclusions that I hope will not be uninteresting to you. Shells weighing from a few pounds to a ton are filled with the highest explosives known to science. Shell concussion is a better name than shell-shock, and I believe ultimately will be the name and term used in these cases, because it is concussion that the patients are suffering from more than shock. Concussion better explains it. The results of the injury are anywhere from instant death to those immediately in the neighborhood of the explosion to various disturbances where you are just outside of the vital range, depending upon the size of the explosive and the distance away. The results may be nothing but a jolting of the nervous system, a little upset of the equilibrium, which may last only a few minutes or a few hours. Again, the result may be one of unconsciousness and may last for several days, from which the patient has headache, vertigo, amnesia, deficiency of speech, mutism, stammering, disturbance of vision, concentric narrowing of vision, double vision, disturbance of hearing, from total to partial deafness; motor disturbances, hemiplegia, paraplegia, etc. There may be sensory disturbances of a great variety, such as muscular tremors, twitchings, disturbances of the reflexes, analgesia and hyperesthesia, and paresthesia, loss of thermic sense, and along with these symptoms there is quite a variety of psychical disturbances.

Now, I come to my theory or explanation of it, and we are all entitled to an opinion, and if we reason along logical lines we are very likely to arrive at a satisfactory working hypothesis or satisfactory working explanation to explain this opinion.

When we consider the array of symptoms we realize that practically

the entire nervous system has been involved in some cases or in others. Let us consider what takes place in a violent explosion. If anybody has been near one and has not been so unstrung or disturbed, he has not been able to have a fair idea of his impression. There is at first a tremendous rush of air, followed in a few moments by a recoil and a rush towards the center of explosion. This tremendous displacement of air acts as a shock. If it strikes with sufficient force, the shock may envelop the whole body in some instances. You receive a sudden blow on the side of the head, or there may be an instant between the time of the blow you feel on one side, and the other not beginning for some days. This may be explained as to whether the patient's right side was towards the force, or the left side, or front of the head, or the back. The recoil that takes place is equivalent to a sudden vacuum. We have a combination of severe concussion of the brain plus the same condition that takes place in caisson disease, where one is in rarified atmosphere, producing æration of nitrogen bubbles into the blood. Comparing that with the cases we see suffering from concussion, we find them with all sorts of neuroses afterwards. Many of them, since these patients are suffering from shell concussion, have absolutely no recollection of what took place. I have had two cases in the Charity Hospital, one of them a boy, who, in crossing a track in front of a car, threw up his hands. The car knocked him down. He was taken to the hospital; he did not know anything of the accident, but the car hit him. Everything was a blank. Half an hour before that he left his place of business on an errand and he did not know what happened. Those who saw him say that he hallooed, trying to get off the track, but was knocked down.

If you make inquiry in cases of concussion of the brain and brain injury you often find they do not know anything of what happened to them. You take a man in the heat of battle, under great excitement, probably fear, and let such a severe concussion knock him out for several days, what is likely to be the state of the nervous system afterwards? In that highly excited state he is in a favorable condition for the development of all sorts of psychoses if grafted on a neurotic base.

There are many other explanations I could give you, but that puts an idea into your heads. I believe that shock taking place from a sudden blow on the head is an explanation of a great many of the phenomena we have in shell-shock or in shell concussion, because, from the great array of symptoms, the entire nervous system, spinal cord, as well as the higher centers, must be disturbed, and it is the only plausible explanation where the parts are involved, plus the physical disturbance that is taking place in one under great excitement and fear, and any other emotions he may have when this thing happens are enough to upset any man's reason.

**Dr. C. S. Holbrook, Jackson (closing):** I wish to express my thanks to Dr. Allen for his remarks, and I wish to say that the army medical organization is trying to prevent casualties from shell-shock or from shell concussion or the strain of war from becoming as prevalent as has been the experience in northern France. Dr. Allen has explained very clearly the prevalent idea of shell-shock, and I wish to thank him for elucidating it so nicely.

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**A RUNNING EAR.\***

By GEORGE J. TAQUINO, M. D., New Orleans.

When one considers the seriousness of a running ear he appreciates the fact that too much cannot be said on the subject.

A running ear, or acute-suppurative otitis, is usually secondary to grippe, scarlet fever, measles, diphtheria, adenoids, whooping-cough, etc. And such a condition should be looked upon as serious. He cannot be sure of the severity of the condition or the possibilities of the invasion.

Generally speaking, a running ear is secondary to acute catarrhal otitis, and the exciting cause is the presence of microorganisms in the middle ear. The extension is through the Eustachian tube, followed by a rupture of the drumhead, with a flow of pus. This sometimes results in a cure, but usually the case requires care and watchful waiting.

The majority of cases are found in children, and are often influenced by changes which obtain in autumn and spring.

A feeling of heaviness, with headache; fullness and deafness in the affected ear, slight or excruciating pain, perhaps more pronounced and intense in children, indicate the onset. This is probably due to the presence of adenoids and hypertrophied tonsils. There may be a slight chill, followed by an elevation of temperature, which subsides as drainage is established.

The secretion may be muco-purulent or purulent. The quantity may vary at different times and one form of secretion may follow the other. The type which runs an irregular or intermittent course, pain occurring irregularly, is a dangerous type, for this may mean bone necrosis, with mastoiditis, sinus-thrombosis, brain-abscess or meningeal complication.

A running ear is also to be feared because of the sequelæ, and for this reason should receive immediate and scientific treatment. Some cases may terminate in a cure, but one must be chary at all times, as many of these so-called cures leave sequelæ, which may develop in after-years into a train of symptoms both dangerous and vital.

A running ear, whether in child or adult, should at all times be looked upon seriously and receive the very best of care, for the success or failure of our treatment may mean not only the health, but the very life of the patient.

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

## DISCUSSION ON THE PAPER OF DR. TAQUINO.

**Dr. J. T. Crebbin**, New Orleans: The doctor is to be congratulated, first, on the brevity of his paper, and the few remarks I have to make will be more a reiteration than anything else.

We cannot emphasize too strongly the danger of a running ear. It is a dangerous thing, whether it occurs in childhood or adult life. As was brought out in one of the preceding papers, the condition was preceded by an acute catarrhal otitis. If this condition had received proper treatment, such as tympanotomy, it might have been aborted. By tympanotomy we mean complete tympanotomy from above downward, making use of an elliptical incision. If this is done it will abort most of these cases. Running ear is at all times a dangerous condition. You cannot tell, the patient cannot tell, the one who is treating the patient cannot tell the exact pathologic condition that exists. The patient, no matter whether it be a child or an adult, will go around, walk around the streets of the city, attending to their vocation, with a floating mine in their head. No one can tell when that mine may explode or the pathologic condition extend to the meninges or cause death itself. A running ear should be looked upon at all times as something dangerous and should receive the very best care. In this condition, heat in many instances should not be used. As a matter of fact, I do not think it should be used unless there be a condition of furunculosis. We should not think of using heat in such cases. We should consider the use of the ice-bag. The ice-bag will control the condition to some extent; it will allay suffering and allay the inflammatory condition to a great extent.

One of the points I wish to emphasize is that where the drainage goes on for a while and then discontinues, where there is some fever, you cannot depend on the rise or reduction of fever. It is not an infallible sign, because frequently we will find pronounced and severe involvement of the mastoid process with comparatively little fever, whereas the other may be the reverse; so do not depend too much upon fever, whether it goes up or down, but depend on other symptoms with which you are familiar. Where the drainage stops and where there is irregularity and it will commence again, you will have a dangerous condition to deal with. These cases, at all times, should be looked upon as demanding immediate and scientific treatment.

In regard to the treatment, the essayist did not mention it, except that we want to establish drainage as soon as possible, using irrigation freely and carefully, so as not to drive the muco-purulent discharge back into the middle ear more than what already exists. We have used silvol, or silver protein. I do not mention this name for the purpose of advertising it, but I have been using silver protein successfully and am getting good results.

**Dr. William T. Patton**, New Orleans: I believe this subject is too important to allow it to go by as lightly as we have done, because of the opinion held regarding it by many general practitioners. Many of these cases come to my office, and after examining them I have asked the question, "Have you been treated?" and the reply invariably is, "My doctor says it is all right; let the discharge run out, don't stop it." In other cases of running ears in children the parents are told that this condition must be expected during teething. It is a bad idea to talk of running ears. Some of them get well with prompt treatment. I believe 75 or 90 per cent of acute running ears can be successfully treated

if the patients are taken in hand early enough. When I speak of acute running ears I mean from two to three weeks or five or six weeks, and if they are treated in the first two or three weeks I believe they can be cured, but if left to run six months or a year very few of them can be cured. If we take cases in the first two or three weeks, under special treatment nearly all of them get well. By special treatment I do not mean irrigating the ears. That is the best thing you can do first, but keep them clean with normal salt solution, boric acid or some other solution. Probably bicarbonate of soda is as good as any. If we have enlarged tonsils and adenoids continually reinfecting the ear, the ear will never get well with irrigation. You have to remove the tonsils and adenoids, and, if you cannot do this, treat the tonsils and adenoids with solutions introduced in the nasopharynx. In infected adenoids and enlarged tonsils it is remarkable to see the improvement that takes place in two or three days after their removal. You will invariably see a dry ear in a short time.

I do not believe the paper spoke of running ears in adults. In adults you have a deviated septum in 75 per cent of the cases associated with the running ear. You can look at the nose and tell which ear is discharging. It will be the side on which there is a deviated septum, causing a chronic or acute condition of the Eustachian tube, which blocks up and prevents drainage of the ear. What is nature trying to do with the middle ear? By the Eustachian tube it drains the fluid into the middle ear and nasopharynx. You drain a small amount of fluid out of the middle ear into the nasopharynx, and in that way prevent trouble in the ear. We have a congestion of the Eustachian tube, due to adenoids, and obstruction of the septum, due to hypertrophy of the inferior turbinated or middle turbinated body, or some serious condition, so that the ear will not heal up. The little cilia back of the mucous membrane become diseased in the Eustachian tube and the cilia are prevented from working, the Eustachian tube becomes blocked, and a certain amount of secretion goes to the middle ear, and the first thing you know is that you have an acute condition and a vicious circle. The middle ear is being infected in one way and the fluid is coming out. We should treat the condition behind first. Local irrigation will help, but you have got to treat the cause of the condition; treat the nose and throat primarily, the ear secondarily, and you will get very few bad results from suppurating ears.

**Dr. George J. Taquino**, New Orleans (closing): Dr. Crebbin mentioned the fact that we should do tympanotomy. You cannot do tympanotomy too early in these cases. The drum ruptures through the process of necrosis, and the opening is closed by a process of scar tissue; whereas if we make an incision we have a good, clean cut, the drum getting back into position and no damage is done.

Dr. Crebbin mentioned regarding pain and elevation of temperature in conditions where the mastoid is involved. The temperature is not a guide, in any case, to a real involvement of the mastoid. For that reason also I believe in going back to tympanotomy. We should make the incision high up to get free drainage.

I agree with Dr. Crebbin in not using a hot-water bag. I use an ice-cap. It controls pain, and at the same time it seems to have an influence on the condition that is existing in the sinuses. He mentioned silvol and silver protein. Silvol contains proto-nucleoid. It is a carbolio acid coefficient and it is efficacious in these conditions.

With Dr. Patton's remarks I agree fully that we should begin treating or looking after the nasopharyngeal tract. I believe many of the conditions in the ear exist as a result of the conditions that prevail in the nose and throat. Septal deformities prevent proper ventilation and aeration of the nose and Eustachian tube, and have a tendency to produce a low-grade inflammation in the Eustachian tube, sometimes blocking the exit and sometimes the secretion goes into the middle ear, producing a running ear. The septum in all cases should be straightened. We should look for adenoids and diseased tonsils. These factors should be removed, for I think there lies the true etiological factor in producing a great many cases of running ear.

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### THE CROSS-EYED CHILD NEGLECTED.\*

By J. HUME, M. D., New Orleans.

I wish to speak of a class of cases occupying a unique position in our medical literature—a class of cases fully and satisfactorily treated, as regards etiology, symptomatology, prognosis and treatment in our ophthalmic literature, and almost, if not entirely, ignored in that of the other great branches of medicine. I refer to the deviations of the eye from parallelism. Certainly it deserves more attention from the general practitioner than the past has accorded it, since proper advice during the period of its inception is essential to its successful treatment and as neglect of early attention is apt to result in an amblyopic eye. I trust you will not infer that I attribute it to carelessness on the part of the general practitioner, but rather to the fact that not enough attention has been given this important subject in the general literature of medicine, and especially in our text-books of pediatrics. Holt mentions squint as a stigma of degeneration and as a symptom of certain brain conditions. Other well-known works on pediatrics mention it not at all.

In the service of Dr. Dimitry at the Charity Hospital and in my own service at the Women's and Children's Dispensary I have during the past few months recorded quite a series of cases over ten years of age presenting themselves for treatment for the first time. Most of these patients stated they had been advised to wait until they were older, when an operation could be made that would straighten the eye—certainly advice that delayed treatment during the period when it would have been the most efficacious.

I believe authorities agree that up until the sixth month of life the motor coördination power of the ocular muscles keep the eyes

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

approximately straight in the absence of any disturbing influences. At about this time the fusion centers begin to develop, and not until the end of the sixth year is this development complete. If during this period the visual acuity of the eyes is approximately the same, and with extra ocular muscles properly developed and enervated a condition of parallelism obtains, and as a consequence we have binocular vision. Should, however, there be any marked difference in the visual acuity or insufficiency of the ocular muscles, the effort of the developing fusion sense is retarded or the eye squints in order to prevent a diplopia. So it is between the sixth month and the sixth year that we find the greatest per cent of squint cases in their incipency, and the proper period to begin their treatment, as every hour after the beginning of a squint lessens the chances of restoring a perfect visual acuity. Take the above cases, for example, presenting themselves for treatment at the age of ten. The visual acuity in the squinting eye is invariably low, the fusion centers undeveloped. You operate and are liable to get a successful cosmetic result, but a visual failure. Many of the cases taken between the ages of two and six could, by a proper refraction, have kept the eyes parallel and the visual acuity normal.

It is not my purpose to discuss the causes of deviations or their treatment, but rather to call attention to the fact that for some reason which we should search for and correct a majority of these cases are not given attention during the developmental period. Certainly, squint is not of such frequent occurrence as the adenoid, but, I venture to say if given half the publicity the latter has had, a few years would find a greatly reduced number of cross-eyed people. Most any mother can give you the symptoms of adenoids, but would be shocked when told her child of ten was practically blind in his squinting eye, and probably so as a result of neglected early attention. If we are able in any way to educate the public about cross eyes, as we have done about the adenoid, much could be accomplished toward conserving the vision of these unfortunates.

The oculists present all understand that I am only referring to a class of squint cases, a large class, however, and am not inferring that it is a simple problem with which we are dealing in every instance, and all realize, I believe, that the greatest problem is to get them for treatment at an early age.

My recommendations are educational:

First. That pediatrics should teach more about squint, it being in many instances a condition of early childhood.

Second. More publicity should be given the condition. Discussing it before mothers' clubs and child welfare associations, etc., would be an available means.

Third. More frequent papers presented to the various medical bodies by the oculists on the different phases of the subject.

#### DISCUSSION ON THE PAPER OF DR. HUME.

**Dr. Arthur L. Whitmire**, New Orleans: I think a great deal can be accomplished by the physician coöperating with the specialist. In my experience with the schools of New Orleans for two years I had occasion to observe 75,000 children each year, and I have been recommending them to be treated, and it was a rare exception to find a case where the parents did not coöperate with me. If the public health officers in the different towns and cities and parishes and inspectors of schools should recommend cases for treatment where the eyes are crossed, I am sure that the parents will be found ready to coöperate with them. This is very important, because children with cross eyes are overlooked until too late to get a desirable effect. We should coöperate with the general practitioner, because it is he who sees these cases first. We find that mothers do not want their babies to wear glasses, and that is another condition we have to contend with, and the general practitioner can do more in that respect, by referring these cases to a specialist for treatment and having the condition corrected, more than any other person.

**Dr. T. J. Dimitry**, New Orleans: If we could only get the cross-eyed baby early enough we could straighten the eyes in 50 per cent of the cases at least with glasses. We can fit infants with glasses, and infants will wear glasses, and they do not suffer as a consequence of wearing them. They are not broken so easily as one would suppose. They do not expose their eyes to the danger of having them injured by the wearing of glasses. The glasses will straighten their eyes, and in doing so it will prevent the eye that is turned 'in—that is not being used—from becoming blind in a great many cases. If these cases can be seen early, then we will not have to operate in at least 50 per cent of the cases. The earlier we see them, the better will be the results that we can obtain.

Dr. Hume's paper is most appropriate, for it will bring to you the importance of seeing these cases at the earliest possible moment and of not sending them to the specialist after damage is done.

**Dr. J. Hume**, New Orleans (closing): As to Dr. Whitmire's suggestions with regard to school boards, I think the findings of the school boards are valuable, yet it is much better to get these cases at an earlier period of life than we are getting them. It is better to get them at six years of age than at eight. The point of reaching these patients at as early a date as possible is a very valuable one.

In answer to the question relative to operation, I was referring at that time to cases that applied for treatment after ten years, with squinting eye in which the visual acuity was very low. Such an eye can be straightened by operation, but probably vision will not be benefitted. It may help it somewhat, but treatment will not be so satisfactory as if the operation was done much earlier, because you have left the eye squinting from the second to the sixth year. You have a period of five years in which it is turned away from natural fixation. If the eye was normal at the time of squinting, there would be reduction in vision. That is what I meant by a good cosmetic result, and not visual.

## NEWS AND COMMENT

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THE CENTRAL GOVERNING BOARD OF THE VOLUNTEER MEDICAL SERVICE CORPS OF THE COUNCIL OF NATIONAL DEFENSE announces that the Louisiana State Executive Committee of the Volunteer Medical Service Corps is comprised of the following doctors:

Oscar Dowling, M. D.....Commercial St., Shreveport  
 Charles R. Mayer, M. D.....New Orleans  
**Charles Chassaingnac, M. D., Chairman.**..211 Camp St., New Orleans  
 G. J. Sabatier, M. D.....New Iberia  
 R. G. McG. Carruth, M. D.....New Roads  
 J. B. Sewell, M. D.....Baldwin  
 R. L. Randolph, M. D.....Alexandria  
 J. C. Callan, M. D.....New Orleans  
 Ernest S. Lewis, M. D.....New Orleans  
**G. Farrar Patton, M. D., Secretary.**....New Orleans

The purpose of this committee is to coöperate with the Central Governing Board in prosecuting all activities pertaining to the mobilization of an enrollment of members of the Volunteer Medical Service Corps throughout the State.

The Central Governing Board of the Volunteer Medical Service Corps also authorizes the appointment of one county representative in each county in every State of the Union. The parish representatives for Louisiana are as follows.

PARISH.	NAME.	CITY.
Acadia. . . . .	Dr. E. M. Ellis . . . . .	Crowley
Allen. . . . .	Dr. C. Lewis Gaulden.....	Elizabeth
Ascension. . . . .	Dr. T. H. Hanson.....	Donaldsonville
Assumption . . . . .	Dr. W. H. Kittridge.....	Napoleonville
Avoyelles. . . . .	Dr. Thos. A. Roy.....	Mansura
Beauregard . . . . .	Dr. J. C. Miller. . . . .	Bon Ami
Bienville . . . . .	Dr. J. M. Moseley . . . . .	Arcadia
Bossier. . . . .	Dr. D. J. McAnn . . . . .	Atkins
Caddo. . . . .	Dr. J. C. Willis. . . . .	Shreveport
Calcasieu. . . . .	Dr. S. G. Kreeger.....	Lake Charles
Caldwell. . . . .	Dr. I. B. May. . . . .	Columbia
Catahoula. . . . .	Dr. E. R. Yancey . . . . .	Jonesville
Claiborne . . . . .	Dr. C. C. Craighead.....	Athens
Concordia. . . . .	Dr. W. H. Pugh.....	Wildsville
De Soto. . . . .	Dr. S. D. Kearney . . . . .	Pelican
East Baton Rouge . . . . .	Dr. Chas. McVea . . . . .	Baton Rouge
East Carroll . . . . .	Dr. W. H. Hamley . . . . .	Lake Providence
East Feliciana. . . . .	Dr. E. M. Toler. . . . .	Clinton
Evangeline. . . . .	Dr. H. C. Milburn. . . . .	Ville Platte

PARISH.	NAME.	CITY.
Franklin.....	Dr. A. J. Reynolds .....	Ft. Necessity
Grant.....	Dr. E. B. Gray.....	Colfax
Iberia.....	Dr. G. J. Sabatier.....	New Iberia
Iberville.....	Dr. G. A. Darcantel.....	White Castle
Jackson.....	Dr. A. E. Simonton.....	Jonesboro
Jefferson.....	Dr. C. F. Gelbke.....	Gretna
Jefferson Davis.....	Dr. N. S. Craig.....	Jennings
Lafayette.....	Dr. M. E. Saucier.....	Lafayette
Lafourche.....	Dr. C. J. Barker.....	Thibodaux
Lincoln.....	Dr. A. E. Fisher.....	Choudrant
Livingston.....	Dr. J. M. Ehlert.....	Springfield
Madison.....	Dr. H. C. Sevier.....	Tallulah
Morehouse.....	Dr. O. M. Patterson.....	Bastrop
Natchitoches.....	Dr. E. W. Breazeale.....	Campiti
Orleans.....	Dr. Geo. F. Cocker and others...	New Orleans
Ouachita.....	Dr. O. W. Cosby.....	Monroe
Plaquemines.....	Dr. H. L. Ballowe.....	Buras
Pointe Coupé.....	Dr. R. McG. Carruth.....	New Roads
Rapides.....	Dr. R. O. Simmons.....	Alexandria
Red River.....	Dr. C. E. Edgerton.....	Coushatta
Richland.....	Dr. H. C. Chambers.....	Girard
Sabine.....	Dr. J. M. Middleton.....	Many
St. Bernard.....	Dr. L. A. Ducros.....	St. Bernard
St. Charles.....	Dr. R. H. Johnson.....	Moberly
St. Helena.....	Dr. A. J. Newman.....	Montpelier
St. James.....	Dr. J. E. Doussan.....	Lutcher
St. John the Baptist....	Dr. S. Montegut.....	Laplace
St. Landry.....	Dr. Jos. P. Saizan.....	Opelousas
St. Martin.....	Dr. P. H. Fleming.....	St. Martinville
St. Mary.....	Dr. Lewis B. Crawford.....	Patterson
St. Tammany.....	Dr. W. E. Van Zant.....	Mandeville
Tangipahoa.....	Dr. E. L. McGehee.....	Hammond
Tensas.....	Dr. J. Whitaker.....	St. Joseph
Terrebonne.....	Dr. L. J. Menville.....	Houma
Union.....	Dr. R. L. Love.....	Farmerville
Vermillion.....	Dr. C. J. Edwards.....	Abbeville
Vernon.....	Dr. D. O. Willis.....	Leesville
Washington.....	Dr. E. E. Lafferty.....	Bogalusa
Webster.....	Dr. R. C. Tompkins.....	Minden
West Baton Rouge.....	Dr. F. H. Carruth.....	Lobdell
West Carroll.....	Dr. C. W. Smith.....	Oak Grove
West Feliciana.....	Dr. E. M. Levert.....	Bayou Sara

GENERAL PLAN.—The Volunteer Medical Service Corps is exactly what its name indicates. It is a gentleman's agreement on the part of the civilian doctors in the United States who have not yet been honored in the army and navy, and a representative board of gov-

errors consisting of officials of the government associated with lay members of the profession, in which the civilian physician agrees to offer his services to the government if required and asked to do so by the governing board. It is a method of recording all physicians who are not yet in service and classifying them so that their services when required will be utilized in a manner to inflict as little hardship on the individual as possible. It is a method by which every physician not in uniform will be entitled to wear an insignia which will indicate his willingness to serve his government. As more than 60 per cent of the physicians of the country will be utilized in caring for the industries at home and the health of the home people, this large percentage of necessity will be expected to maintain their home status and continue their ordinary professional work.

CONFERENCES ON TUBERCULOSIS.—The National Tuberculosis Association announces that it has plans under way for five conferences, covering the country in geographic sections, to consider practical measures for coping with tuberculosis as a war problem. The questions discussed will be the means of providing adequate care for the thousands of soldiers and sailors already discharged from the army and navy on account of tuberculosis, and rejected in the draft for the same reason, and also the question of educating the civilian population more fully regarding tuberculosis during the war. The future conferences are to be held as follows: Denver, October 2-4; Birmingham, Ala., October 11-12; Pittsburgh, October 17-18; Providence, R. I., October 25-26. All health officers, dispensary physicians, visiting nurses and others interested are urged to attend.

MEETING OF MILITARY SURGEONS OF THE UNITED STATES.—The annual meeting of the Association of Military Surgeons of the United States will be held at Camp Greenleaf, Fort Oglethorpe, Ga., October 13, 14 and 15, under the presidency of Dr. Geo. A. Lung, Medical Director in the United States Navy.

OFFICERS FOR THE AMERICAN ASSOCIATION OF ANESTHETISTS.—At their sixth annual meeting in Chicago in August, 1918, this association elected Major W. B. Howell, C. A. M. C., Montreal, Canada, president, and Dr. F. H. McMechan, Avon Lake, Ohio, secretary-treasurer.

THE COLLEGE OF MEDICINE, Tulane, opened for the session on September 23. The matriculation in the School of Medicine and

the School of Dentistry promises to be unusually large. It is too early to estimate that of the Graduate School of Medicine (New Orleans Polyclinic). The School of Tropical Medicine is discontinued for the duration of the war.

HAVANA HONORS DR. ARTEAGA.—One of the wards of the new Garcia Hospital at Havana has been named in honor of Dr. Serapio Arteaga, a leading obsterician of Havana in his day and professor of gynecology and obstetrics in the university. His portrait was installed with much ceremony in the new ward recently. His son is editor of the *Revista de Medicina y Cirugia*.

CENSUS GIVES CANCER INCREASE.—The latest returns of the United States Census on cancer and other malignant tumors show 58,000 deaths in 1916. Of these, 22,480, or nearly 39 per cent, resulted from cancers of the stomach and liver. The death rate from cancer has risen from 60 per 100,000 in 1900 to 81.8 in 1916. According to the authorities, it is possible that at least a part of this increase is due to more correct diagnosis and to greater care on the part of physicians in making reports.

FLIGHT SURGEONS.—Plans have been elaborated to supervise the period of rest, recreation and duty of aviators and candidates, so as to get the best results. A corps of surgeons and physical trainers will be assigned each aviation field and camp for this work. The surgeon so assigned will be known as "flight surgeon."

ACCORDING TO THE ARMY AND NAVY AUTHORITIES, nearly 50,000 doctors will be required for war service eventually. It is proposed, in order to prevent the disorganizing of the teaching staffs of the medical schools, to commission all teachers and assign them to their present duties. It is estimated of the 143,000 doctors in the United States that between 80,000 and 95,000 are in active practice and that 23,000 are in the army or navy.

CORRESPONDENCE SCHOOL FOR PHARMACISTS.—The Bureau of Medicine and Surgery of the Navy is conducting a correspondence school for naval pharmacists, the course being in charge of Surgeon Henry L. Dollard, U. S. N. The benefits of the school are open to all pharmacists and chief pharmacists, permanent, temporary and of the reserve. The course is so conducted that every pharmacist taking it gets the benefit of the experience of the other students.

**MOSQUITOES BANISHED FROM HOG ISLAND.**—By draining a marsh twenty-five miles long, at a cost of \$250,000, the officials of the United States Shipping Board believe that Hog Island, now the center of a vast shipbuilding industry, is effectively rid of mosquitoes. New Jersey, since witnessing this achievement, has decided to spend \$150,000 to drain the Newark meadows.

**CONVENTION OF SANITARIANS.**—Under the auspices of the American Public Health Association, a convention of sanitarians of the United States and Canada will be held in Chicago, October 14-17. Papers will be presented on laboratory, internal hygiene, vital statistics, food and drug, sanitary engineering, sociologic and general health administration subjects. Governors of States and mayors of cities have been requested to send their health officers to this conference. Further information will be furnished by A. W. Hendrich, secretary of the American Public Health Association, 1041 Boylston street, Boston.

**NEW PHYSIOLOGIC JOURNAL.**—The first number of the *Journal of General Physiology* made its appearance on September 20. This journal will appear bi-monthly and is intended to serve as an organ for publication of papers devoted to the investigation of life processes from the physiochemical point of view. The editors are Dr. Jacques Loeb, of the Rockefeller Institute for Medical Research, and Prof. W. J. V. Osterhout, of Harvard University. The subscription price is \$5 a volume and subscriptions should be sent to the *Journal of General Physiology*, Publication Department, the Rockefeller Institute for Medical Research, Sixty-sixth street and Avenue A, New York City.

**RECONSTRUCTION.**—This is the title of a periodical devoted to the reconstruction of disabled soldiers and sailors, published monthly at Ottawa, Canada, by the Department of Soldiers' Civil Reestablishment. It is similar in scope to *Carry On*, a monthly periodical issued from the office of the Surgeon General, Washington, D. C.

**CHIROPODISTS IN THE ARMY.**—According to announcement from the War Department, chiropodists taken into the army will be transferred directly to the medical department and either assigned immediately to the various camps for duty under the camp surgeon, or first sent to Camp Greenleaf for further training under the regular orthopedic instructors. On the demonstration of proper

skill and attainments, they may be advanced to the grade of sergeant. A canvass of the camps is now being made to determine the need of this service.

DR. ABRAHAM JACOBI has accepted the office of honorary president of the Friends of German Democracy, an organization of Americans, mostly of German descent, who favor the destruction of Hohenzollern rule.

THE WAR DEPARTMENT will station at Tulane University a regular army officer to be in charge of the men enrolled in both sections of the Student Army Training Corps. The officer in command will pass judgment upon men in Tulane and will decide which students shall be retained for training in technical subjects and which sent to camps for private training. The subjects taught and the time to be devoted to military drill is dictated by the War Department.

TO ENLARGE MARINE HOSPITAL AT NEW ORLEANS.—Seven or eight new buildings are to be added to the United States Marine Hospital at New Orleans, making it one of the best in the country. The additions planned will cost between \$200,000 and \$250,000. The plans are already drawn and the additions will be rushed and, when completed, will have facilities for taking care of not only the navy's sick, but of the sick of the merchant marine as well.

LOYOLA HOSPITAL UNIT ARRIVES IN ITALY.—A cablegram was received the latter part of August from Genoa, Italy, announcing the safe arrival of the Loyola Hospital Unit No. 102, which left the United States for Italy about three weeks earlier.

PERSONALS.—Major Seale Harris, editor of the *Southern Medical Journal*, Birmingham, Ala., is now stationed at 12 Place Vendome, Paris, where he is on hospital duty.

Major Isadore Dyer, New Orleans, after nearly two months' work in the Surgeon General's office, where he was called for duty, has returned.

Dr. Joseph F. Baldwin, M. C., former intern at Touro Infirmary and a graduate of Tulane College of Medicine, 1915, was killed while on trench duty in France attending the wounded.

Among the doctors of New Orleans who have returned from their vacation and resumed practice are: Drs. Chas. Chassaignac, Joseph Conn, J. P. Wahl, Chas. A. Borey, O. F. Ernst, John F. Oechsner, Henry N. Blum, J. Brown Larose, Isidore Cohn, Marcus Feingold, J. W. Cirino and H. E. Nelson.

Dr. A. S. J. Hyde, of Baton Rouge, La., is serving in Development Battalion, Camp Wheeler, Macon, Ga., with the rank of first lieutenant.

A card was recently received by the JOURNAL announcing the safe arrival overseas of Lieut. Theodore T. Batson, Base Hospital 86, A. E. F.

REMOVALS.—Dr. F. P. Vines, from Hot Springs to Bauxite, Ark.  
 Dr. Wm. H. Block, to 710 Maison Blanche Building.  
 Dr. D. C. McCuller, from Fisher to Grand Cane, La.  
 Dr. W. P. Perkins, from Leesville, La., to Beaumont, Texas.  
 Dr. G. F. Roeling, of New Orleans to Camp Hancock, Ga.

MARRIED.—On July 30, 1918, Capt. John Gano McLaurin, M. C., U. S. A., of Dallas, Texas, to Miss Lucy Warren Coke. Capt. Mc. Laurin is a Tulane alumnus.

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## BOOK REVIEWS AND NOTICES

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*All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

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**Surgery and Diseases of the Mouth and Jaws**, by Vilray Papin Blair, A. M., M. D., F. A. C. S. C. V. Mosby Company, St. Louis, Mo., 1917.

This volume is a timely and instructive publication, rewritten and brought up to date, containing the latest information and methods of treatment learned on the battle front of Europe. It well merits the distinction, enjoyed by few books, of having the official endorsement of the Surgeon General of the United States Army.

The text is arranged in forty-six chapters, which present the infections, injuries, tumors, congenital and acquired deformities and diseases of the mouth, jaws and surrounding parts, with their medical and surgical treatment.

The chapters on the treatment of fractures are particularly good, also those on cleft palate and hare-lip. The chapters on cancer of the lip and tongue are especially thorough and interesting, expressing the latest opinions concerning these affections. The diseases of the teeth and gums are presented in a well-written chapter. In the chapter on hemorrhage, shock and allied complications, there is much of interest, but here, it did not appear to the reviewer, that the danger of ligating the common carotid artery was sufficiently emphasized, and the use of the Matas band for vascular occlusion, so valuable here, has been overlooked, but in one of the final chapters on ligation and temporary constriction of arteries this danger is prominently presented.

Among the final chapters, those on facial spasm and tic douloureux

are particularly interesting, although the description of the methods for injecting the several branches of the fifth nerve are lacking in detail, and it does not seem that the best methods have always been adopted; but this is more than compensated for by the operative procedures, particularly that upon the gasserian ganglion, which show a thoroughness which is quite refreshing.

It is not unreasonable to expect a few errors in a book of this scope, revised under the conditions which must have prevailed in bringing it up to date, with the latest methods approved on the battle front. Of these, the reviewer has noticed several, but two of which deserve mention. On page 170 the **posterior** palatine nerve is named, instead of **anterior** palatine. In the latter part of the book the words "perineurial" and "intra-neurial" are repeatedly used, instead of perineural and intra-neural. These errors are unfortunate, but in no wise detract from the merits of the volume, which should be in the hands of all interested in this field of work.

CARROLL W. ALLEN.

**Syphilis and Public Health**, by Lieut.-Col. Edward B. Vedder, A. M., M. D. Lea & Febiger, Philadelphia and New York, 1918.

A most timely and instructive publication, it is divided into four chapters, covering: 1, The Prevalence of Syphilis; 2, The Sources of Infection and Methods of Transmission; 3, Personal Prophylaxis; 4, Public Health Measures. There is also an appendix, some of the contents of which are of doubtful utility, as the technic of the Wassermann test; within the limited space there is nothing practical which can be taught about it.

The whole subject is thoroughly discussed and, while the author has no hesitation in expressing his opinion frankly, he is broad enough to outline the other side, thus enabling the reader to reach his own conclusion, which in some instances need not be exactly that of Col. Vedder. It is true, however, that the reviewer is prepared to agree with him on most points, and unqualifiedly otherwise recommends the book to all those interested in the question it handles—and that should be all physicians, at least.

C. C.

**Treatise of Cystoscopy and Urethroscopy**, by Dr. George Luys, translated by A. L. Wolbarst, M. D. C. V. Mosby Company, St. Louis, Mo., 1918.

This is an important work of nearly four hundred pages, written by a master of French urology, a man of large experience who knows how to tell what he has to say and is willing to go into sufficient details. Thus it becomes useful, not only to the student who must be gradually inducted into the art of urethroscopy and cystoscopy, but as well to those who, while already practicing the art, can be introduced to some new ideas and new applications. It is pre-eminently the author's purpose to teach and illustrate the direct vision cystoscopy, which he favors and which is not as generally accepted and practiced in this country as the prismatic, although both are considered.

The translator, who had no small task ahead of him, has done his work admirably and could not have failed, considering not only his ability, but his two-fold purpose in undertaking it, "to bring to American and other English-speaking urologists the message which Luy's book bears" and to "express in concrete form the love and affection" of the translator for France.

The illustrations are fine, 217 in black and white and 24 color plates,

the latter being exceptionally well-done. Printed on heavy paper, with large type, the book is a fine specimen of typographic art.

Author, translator, publisher—all are to be congratulated. C. C.

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## PUBLICATIONS RECEIVED

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**C. V. MOSBY COMPANY**, St. Louis, 1918.

*Nursing in Diseases of Children*, by Chas. G. Leo-Wolf, M. D.

*Surgical and War Nursing*, by A. H. Barkley, M. D., F. A. C. S.

*Hygiene for Nurses*, by Nolie Mumey, M. D.

*A Textbook of Physiology for Nurses*, by Wm. Gay Christian, M. D., and Chas. C. Haskell, M. A., M. D.

**W. B. SAUNDERS COMPANY**, Philadelphia and London, 1918.

*The Medical Clinics of North America*. May, 1918. Index Number.

**P. BLAKISTON'S SON & CO.**, Philadelphia, 1918.

*War Surgery of the Abdomen*, by Cuthbert Wallace, C. M. G., F. R. C. S., M. D., B. S.

**LEA & FEBIGER**, Philadelphia and New York, 1918.

*Military Surgery of the Zone of the Advance*, by Geo. de Tarnowsky, M. D., F. A. C. S.

**THE YEAR BOOK PUBLISHERS**, Chicago, 1918.

*The Practical Medicine Series*. Volume III: *The Eye, Ear, Nose and Throat*. Edited by Casey A. Wood, C. M., M. D., D. C. L.; Albert H. Andrews, M. D., and Geo. E. Shambaugh, M. D.

**GOVERNMENT PRINTING OFFICE**, Washington, D. C., 1918.

*Public Health Reports*. Vol. 33, Nos. 32, 33 and 34.

### MISCELLANEOUS:

*On the Fringe of the Great Fight*, by Col. Geo. G. Nasmith, C. M. G. (Geo. H. Doran Company, New York, 1918.)

### REPRINTS.

*Speech-Reading for the War Deaf*, by Clarence John Blake, M. D.; *The Partially Deaf Child: A School Problem*, by John D. Wright; *Things Are Not Always What They Seem*, by Alice N. Trask; *The Serviceability of Visible Speech*, by Chas. W. Kidder; *The "Conscientious Objector,"* by Louise I. Morgenstern. (The Volta Bureau, 1601 Thirty-fifth street, N. W., Washington, D. C.)

*Algunas Notas Sobre la Filariasis*, por A. Martinez Alvarez, M. D.

*Mortality Among Women from Causes Incidental to Child-Bearing*, by Louis I. Dublin, Ph. D.

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## MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for August, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever	9	8	17
Intermittent Fever (Malarial Cachexia)	2	—	2
Syphilis	—	—	—
Pellagra	—	—	—
Scarlet Fever	—	—	—
Whooping Cough	13	4	17
Diphtheria and Croup	4	—	4
Influenza	1	—	1
Cholera Nostras	—	—	—
Pyemia and Septicemia	—	1	1
Tuberculosis	38	48	86
Cancer	22	9	31
Rheumatism and Gout	4	1	5
Diabetes	4	3	7
Alcoholism	—	—	—
Encephalitis and Meningitis	—	2	2
Locomotor Ataxia	—	—	—
Congestion, Hemorrhage and Softening of Brain	19	10	29
Paralysis	2	—	2
Convulsions of Infancy	—	1	1
Other Diseases of Infancy	16	11	27
Tetanus	—	1	1
Other Nervous Diseases	1	1	2
Heart Diseases	30	43	73
Bronchitis	—	—	—
Pneumonia and Broncho-Pneumonia	12	15	27
Other Respiratory Diseases	1	1	2
Ulcer of Stomach	—	1	1
Other Diseases of the Stomach	2	—	2
Diarrhea, Dysentery and Enteritis	23	15	38
Hernia, Intestinal Obstruction	5	3	8
Cirrhosis of Liver	7	1	8
Other Diseases of the Liver	2	1	3
Simple Peritonitis	—	—	—
Appendicitis	8	2	10
Bright's Disease	16	13	29
Other Genito-Urinary Diseases	13	17	30
Puerperal Diseases	5	4	9
Senile Debility	3	—	3
Suicide	3	—	3
Injuries	28	16	44
All Other Causes	18	17	35
TOTAL	311	249	560

Still-born Children—White, 27; colored, 17; total, 44.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1,000 per Annum for Month—White, 13.32; colored, 29.73; total, 17.50. Non-residents excluded, 14.22.

Mean atmospheric pressure. . . . . 30.04

Mean temperature. . . . . 82

Total precipitation. . . . . 6.19 inches

Prevailing direction of wind, southeast.



# NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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ISADORE DYER, M. D.

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ROY M. VAN WART, M. D., Tulane University of Louisiana.	

Vol. LXXI

NOVEMBER, 1918

No. 5

## EDITORIAL

### SPANISH INFLUENZA.

The cyclic spread of influenza appears to have reached the United States, and the pandemic is well under way. Hardly any section has escaped it, and the army reservations and naval stations have especially developed the disease. Like other wholesale epidemics of the epizootic, the present one has developed rapidly and promises further spread before it declines. The mortality appears higher than the customary winter grippé, and the present outbreak more nearly resembles that which covered the United States in 1890 and 1891.

The rapid onset, early temperature exacerbation and the pneumonic complications are characteristic. The avoidance of gatherings and of public exposure are important, but, of course, the individual sick or just recovering is always the object of danger in the spread of the disease. At the first suggestion of headache, coryza, cough, sneezing and other catarrhal symptoms, the victim should go home and to bed.

The health authorities are active in distributing information as to how to prevent this disease and how to take care of those sick with it. The prompt quarantine of those sick with influenza will save others, and this is practiced by the military authorities. As the disease usually runs its course in a few days, unless there are other complications, the present epidemic ought to have a rapid course and exit.

A profession already overtaxed will have the burden of the strain, but theirs is the duty to educate the public to the way of shortening the epidemic.

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### THE STUDENTS' ARMY TRAINING CORPS.

On October 1, some five hundred universities and colleges officially inaugurated the operation of the Students Army Training Corps, through which about 150,000 young men became privates in the army of the United States under exceptional conditions.

While the continuance of a college education to its completion may not be possible for many of these students, all of them will be thoroughly trained as soldiers while they are in college. Those whose courses may be shortened will have the gratification of going into further training as officers, if their first trial in college is satisfactory.

Students of medicine are particularly fortunate. A wise government has recognized the necessity of encouraging qualified students in the pursuit of medical study and it has provided the way under conditions which to the student should appear as a dream come true. The most expensive of all professional schools, the medical course, is now offered at no cost to the student, except for his books and instruments, and at the same time he is housed, fed and has the pay of a private. The curriculum of the medical course is to be maintained, with a proper provision for allowances for the military phase.

Not only are the material sides of the question of medical education solved, but there is offered as a reward for the industrious a commission in the medical corps at the end of the training.

Among the many activities which the preparation for war has evolved none will have a more far reaching influence than the organization of the Students Army Training Corps. Universal military training may come about through legislative act, but with the leading colleges in every state engaged in the active training of soldier officers, the boy on the way to manhood will see the process and will demand the right to anticipate as his right, what the college boy now receives by privilege, under a national legislative act.

The end results of the Students Army Training Corps will be many, but even if the war is over before many of these young men are in the field of action, they will have trained for that action and the training will be as potent in the field of civil life or in other human endeavors. Malthusian though the thought may be, the process which has followed every great struggle has brought its blessings in refinement of purpose, closer domestic virtues, greater community achievement and a concomitant return to the integral spiritual and moral life.

The American soldier or sailor in this day has his motives revealed to him, where his instincts have not produced them, and his plane of thought is ethically higher than has been the case in military organization in this country hitherto. It is right to expect that with a superlative training added, our college boy soldiers and sailors will bring up the average in the final count.

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### SPECIAL NOTICE.

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The attention of the members of the American Society of Tropical Medicine is called to the indefinite postponement of the annual meeting fixed for November 11, 1918.

This step was deemed necessary by the president in view of the health conditions prevailing.

(Signed) SIDNEY K. SIMON, M.D.,  
Acting Secretary.

## ORIGINAL ARTICLES

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### SOME SPANISH VIEWS ON SPANISH INFLUENZA.\*

Translated for the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL by  
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(PAGES OF ORIGINAL ARTICLES ARE GIVEN IN BRACKETS.)

[401] CARLÁN (25 May, 1918).—Simultaneously with the enormous influx of strangers who have visited Madrid during these last days—although we do not attribute its presence to this influx—an epidemic afflicts Madrid which is important for the number of cases, but need not cause pre-occupation at present, in view of the mildness of the cases.

The disease has the characteristics peculiar to all the catarrhal epidemics which have been observed historically by the names of influenza, of gripe, or of *trancazo* [Spanish word, meaning literally a blow with a bar]. The only strange thing up to the present time is this, that it has appeared in Madrid without etiological antecedents connected with other populations; however, it is known that these diseases are usually true pandemics, just as they have always been designated.

There is no reason for enumerating the number of opinions, some well aimed and discreet, others capricious and fantastic, which have circulated in these days. As far as we are concerned, we do not believe that there is any motive for great disquiet; but neither would it be prudent to forget that grippal epidemics are characterized by sudden, benign and generalized onset, and that then they are accentuated in gravity and in persistence as time goes on.

\*25 May, 1918.—Carlán, Decio. Las epidemias de las ferias del Santo. *Siglo médico*, Madrid, 1918, lxxv, 401.

1 June, 1918.—Evolución de la epidemia [editorial]. *Siglo médico*, Madrid, 1918, lxxv, 422.

Cortezo, Carlos María [president of the Real Academia Nacional de Medicina, member of the Real Academia de la Lengua]. ¿Influenza ó dengue? *Siglo médico*, Madrid, 1918, lxxv, 422-426. [Reprinted from *Siglo médico*, Madrid, 15 December, 1889, 786-790.]

8 June, 1918.—Carlán, Decio. La cuestión del día. *Siglo médico*, Madrid, 1918, lxxv, 441-442.

15 June, 1918.—Lasbennes, Luis. Contribución demográfica al estudio de la actual epidemia en Madrid. *Siglo médico*, Madrid, 1918, lxxv, 466-468.

29 June, 1918.—[Received by the John Crerar Library, Chicago, 10 August 1918.] Estado sanitario de Madrid. *Siglo médico*, Madrid, 1918, lxxv, 518.

One is reminded of the events of the month of December, 1889, and January, 1890. If the disease continues, we shall publish one of the works which saw the light in *El Siglo Médico* at that time, and well merits reprinting, for it seems written for to-day.

[422] EDITORIAL (1 June, 1918).—As the days pass, apparent confusion regarding the onset and progress of the grippal epidemic prevalent in Madrid for two weeks is being cleared up.

The first thing which appeared strange was its exclusive localization in this capital, inasmuch as epidemics of this class tend to extension among many peoples and to different countries, even to the point of being considered pandemics. Be that as it may, in accordance with data which we consider exact, there are already found affected Barcelona, Sevilla, Valencia and other places.

As for foreign countries, in Paris it seems that numerous cases have occurred and are still occurring, and some of them are grave; in England also various populations have been invaded.

(For America, the cases at Sing Sing and at the Ford factory are quoted from the *Medical Record*, March 30 and April 13.)

Evidently, then, the pandemic character is not lacking; there remains, however, the publishing of the bacteriological confirmation. An observation on this point occurs to us, which we will report for what it is worth.

It is to-day considered certain that the bacillus pathogenic for grippe is the one called Pfeiffer's, from the name of its discoverer; but it is not to be forgotten that this discovery was not made at the time of a well-marked pandemic like that of the years 1889-90, but that it was announced as proved some years after from the bronchial secretions of cases diagnosed as grippe. An author as well known and respected in Germany and in Spain as Strümpell does not consider it certain that the pathogenic organism of this disease is known, although he mentions the works of Pfeiffer.

The following may be the fact, though we do not venture to assert it positively, that the organism considered as ultimately pathogenic for grippe was this, solely for some of its relatively sporadic forms, just as happens with certain intestinal infections, which present syndromes very similar and almost equivalent, but undoubtedly have as their infections bacilli morphologically and biologically distinct.

On this point the bacteriologists have the floor, and it is to be hoped that they will concern themselves with the question not only

with the skill which we recognize with pleasure in many of them, but also with that serenity of judgment and that impartiality which are to be desired in all, in order that they may not darken their counsels by prejudices and routines—which exist even in laboratories. P.

CORTEZO (1 June, 1918).—[*El Siglo Médico* reprints the following article, written by Cortezo at the time of the epidemic of influenza in 1889-90, and in a note compares the present epidemic with that one.]

[422] The sinister genius of epidemics lets loose its malevolent ministries and its agents of desolation and death not alone when it attacks us, but modern life has afforded pernicious supernumeraries who, under the name of amateurs, intelligent persons, correspondents and journalists, invade the organs of publicity on the appearance of every epidemic. And sometimes, in fulfillment of professional duty as viewed by journalists, and at other times because of an itch for the exhibition of originality (as happens with improvised epidemiologists), there is established a veritable boxing match of publicity in which exactness is not always conspicuous, and by means of which the minds of the patient public are infected with fear and trembling.

This event—of which there was a good specimen in the communications with which hygienists *d'occasion* filled the newspapers in the last cholera epidemic with their works on hygiene, mycology and therapeutics, with their infallible remedies, their immortal microbes and their quite new theories—commences to repeat itself as soon as the telegraph has announced the appearance of a pandemic of grippe, whose beginnings we are apparently now facing.

Unintentionally two diseases are being confounded as synonyms, which are completely distinct, as are grippe or *trancazo* and dengue.

For the manner of onset, and for the syndromes, and for the countries invaded, it may be asserted that the epidemic which is now attacking various peoples of Europe has nothing in common with dengue, but is a true influenza, grippe or *trancazo*.

As we have just seen that in a semi-official manner there has been talk of means which our government thinks of adopting against dengue, fearful of blame as silent accomplices of such confusion, we sift out from the lectures [423] recently given in the Faculty of Medicine some concepts relative to the two diseases under consideration.\*

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\*Section on dengue omitted; for a full account of dengue, see C. C. McCulloch "Dengue Fever," NEW ORLEANS MEDICAL AND SURGICAL JOURNAL, March, 1918, lxx, 694-706.

[424] Summarizing, then, dengue as an epidemic disease, as a geographical scourge (*azote geográfica*), presents the peculiarities of being almost exclusively of the tropical zones, of having broken out only twice in Europe (1784 and 1864), and both times having obtained foothold in Cádiz without having spread to the rest of Europe; also it is propagated by human commerce.

Nothing of this is true with gripe, influenza or *trancazo*. This is the prototype of pandemics—that is to say, of the ailments which may affect all countries and all individuals, and this in a manner almost instantaneous, without being subject to human transactions.

The word gripe, according to some authors, comes from the French word *agripper*, which means to surprise or to attack with violence; and, according to others, from the word *chrypka*, which means coryza or catarrh. The Italian writers have given it the name of influenza, which, with the preceding, is the one most used, notwithstanding the fact that the disease has been called epidemic catarrh, epidemic bronchitis, epidemic rheum, catarrhal fever, to mention only a few of the terms used by authors. The common speech also has enriched the synonymy of this affection, calling it, for example, in our country, *trancazo*, a term which expresses the sensation of depression felt by the patients and the fatigue characteristic of the majority of the forms of this disease.

In order to attain a knowledge of it, if not exact, at least approximate, we shall attempt to study it under the following aspects: history, etiology, symptomatology, forms, pathological anatomy, diagnosis and prognosis, nature and treatment.

In general, the epidemic diseases lend themselves better than others to historical study, for reasons easily understood; but, although for gripe we may have superabundant data for giving an extended account of dates and authors, we intend citing only those which may in some manner be useful to us in deducing later some conclusions directed toward the specific and concrete purpose of these lectures. Putting to one side the doubtful epidemics which authors describe from the eleventh to the fifteenth century, and of which we have hardly other data than that they were catarrhal diseases which invaded extended territories, causing death in persons of advanced age (1335), attacking sometimes nine-tenths of the population (1357), determining profound depression, lack of appetite, insomnia and cough (1403), even to the point of producing abortions and hernias (1410 and 1411); putting aside these

epidemics, some of which may be confounded with other diseases, and particularly with pertussis, we shall arrive at that of 1580, described by all the authors, and particularly by our famous Mercado. To this one, the authors who describe it agree in assigning symptoms which fit completely the description of grippe, such as severe headache, debility, cough, both symptoms persistent in convalescence, and frequent favorable termination.

In the seventeenth century are recorded at least ten or twelve other epidemics—some localized, like that of 1657, described by Willis, in London, others which spread over more or less extended territories, like that of 1669 in Holland and Germany, that of 1679 in France and England, etc.

As we advance toward our day [425] the literature of catarrhal epidemics becomes more abundant; from 1709 to 1799 there are more than thirty which we could cite. Limiting ourselves to the principal ones, we will note that of 1709 in France; the one that prevailed from 1720 to 1733, spreading over nearly all the earth, beginning in Germany, passing to England, to France, to Switzerland, to Italy and Spain, arriving in Mexico in 1731, passing to North America, and arriving again the following year in Germany, Scotland, Holland, in France in 1733, and traversing again the same course across Europe and America; that of 1762 was famous for its gravity, and was specially marked in Germany, where it left untouched hardly a tenth of the population; and in the north of France that of 1775 was also noteworthy for being widespread, and for having attacked horses and dogs.\*

During the nineteenth century the following epidemics have been conspicuous: (a) that of 1830, which spread over Russia, Prussia and Austria, appearing in 1831 in England, France and Switzerland, being encountered in this latter year at almost the same date in Europe, Asia and America; (b) that of 1837, which, after having extended itself over all of Europe, assuming at times forms of great intensity, is to be noted for having served as the motive for [426] the works most worthy of study which we possess on this subject, such as those of Nonat, Landouzy, Vigla, Graves and others.

Since these epidemics, there have occurred those of 1847, 1860 and 1870.

There is not lacking an author (Gintrac) who undertakes to

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\*Fuller historical details, with quotations, are given in a long footnote.

deduce from the data collected by him the conclusion that grippe occurs on the average every ten years. In our understanding of the matter, this is one of the times when the average figure is lacking in significance. In this and similar cases the hygienist should by preference direct his attention to the concurrence of causes which determine two epidemics rather than to the chronological interval which separates them, because, when these present themselves simultaneously and synchronize, the epidemic event will be effected just the same with one year of interval as with one hundred. The facts corroborate the exactness of this assertion, since, in a large list of epidemics which I have before me, there are some which have between them only one year, others eight, others ten, others fifteen, and, finally, others twenty-eight.

Let us see now what characteristics these epidemics have presented.

In the first place, all the authors recognize the fact that influenza is one of the diseases whose epidemics are very widespread, being, in this sense, a ubiquitous ailment and one of the most perfect types of pandemics. In the historical review made by all the writers it seems to be noted that, of all the epidemics, those which have taken on the greatest extension and development, those in which it has been proved that all climates and all geographical regions were suited to the development of grippe, have been those of the seventeenth and eighteenth centuries. But we should not lose sight of this, in the first place, that in the centuries previous to these, the appearances of a relatively benign disease might very well pass unperceived, or at least attract a slight degree of attention from experts, at a time when scourges as terrible as leprosy, plague and smallpox devastated civilized Europe. There is nothing so very strange in the fact that we have a more complete knowledge of the progress and extension of influenza in the last three centuries, if we take into account that in them scientific commerce, the facility of communication, and the impulse imparted to the expansion of knowledge by printing, have been considerably greater than in previous epochs.

There is without doubt a fact which indicates variability in the extension of grippe, and that is this, since the second third of our century (the nineteenth) its epidemics continue to take on a character each time more localized, presenting themselves now at one point, now at another, with brief intervals of time; but those great

movements which scattered it in an uninterrupted manner over entire continents, over island, and—in a word—over all the known world, have already ceased to take place.

Likewise, the duration of these epidemics is quite variable. Some have lasted hardly two weeks, having been able in some instances to traverse the whole world in less than six months; others, as for example, that of Paris in 1837, could last ten months, although in these there are always periods of remission, alternating with others of recrudescence. In almost all the epidemics of grippe the beginning is sudden, so that in just one day many cases appear in the same city.

Another characteristic worthy of being kept in mind, of which some mention has already been made, is the large number of individuals attacked, this reaching such a point that in this respect there is no disease comparable with it.

Another peculiarity worthy of mention is its benign character, for it may be said in general that, when there are no intercurrent grave diseases and it does not develop in persons old, debilitated, tubercular, etc., it is one of the most benign epidemic ailments which is known. Some have discussed fixing the mortality of grippe in the proportion of one in a thousand; but, as is self-evident, this is a very venturesome calculation, because special circumstances and, above all, those just mentioned, can make the proportion much more unfavorable, as has happened in France and England in some epidemics of this century.

Much has been said also about the direction followed in the propagation of the disease. Until recently there was a certain accord in considering grippe as a disease which, originating in the northern regions, continued to propagate itself from north to south. Many epidemics have propagated themselves from west to east, others in the reversed direction, but, in reality, nothing positive can be said on this point, and even less at the present time, when isolated epidemics appear at points a long distance apart, leaving unaffected very extended areas.

As we see, and taking into account the data afforded us by the telegraph and the press, the present epidemic can be designated as influenza or *trancazo*, and, as such, has as its chief etiology meteorological and seasonal conditions. Since these are found out of the reach of human means, governments are thus justified in doing nothing to attack it, since the defense against its onset consists rather of individual means than of social or collective ones.

[441] CARLAN (8 June, 1918).—The question which by preference occupies physicians and public attention is that of the epidemic prevalent for three weeks past. In that which is most essential and important, this is on the decrease—that is, in the number of the cases or in the morbidity. But it is not diminishing in those manifestations, which we might call marginal, which in all times, but very specially in modern times, constitute the accompaniment of epidemics, producing in the public mind and in the serenity of scientific judgment and of professional conduct confusions, vacillations and pernicious doubts, which in the interest of all ought to be avoided.

It is self-evident that we refer to the excessive number of reports, impressions, opinions and theories which we see published daily in the newspapers, both political and literary, writings and works attested by signatures more or less known, which, being interpreted by readers devoid of the preparation necessary for judging of their true significance and content, have the immediate result of producing vacillation and distrust, as well in the medical as in the general public.

This is not a new evil. Those who have read the work which *El Siglo Médico* published at the time of the epidemic of 1889, giving its judgment regarding that disease, will remember that then was lamented this evil which is now reproduced, the evil of the exhibitionary itch for improvisations and hasty opinions.

There is no hiding from us—since we have suffered and do suffer from it—the influence begotten in all of them by the urgent desire of journalists to give the character of actuality and novelty to their publications. We know that it is very difficult to elude the temptation of celebrating an interview, of giving an opinion, or of supplying some pages of copy with a signature which lends prestige, authority and *sale* to the sheets which have as their mission the informing and entertaining of their readers. But reputable physicians, laboratories, clinical centers and other scientific entities, these, being cognizant of their own worth and expertness, do not need to strengthen one nor the other with ostentations of exhibition or with debilities of notoriety—these ought to consider the injury which results as the outcome of all this establishing of a sort of prize contest before the vulgar juryman who stumbles over it all, interpreting right and left what he thinks he is qualified to interpret.

After all, in this epidemic [442] there has been less evil in the possible result from the general effects of these boxing matches promoted by the newspapers, which have given this appearance to opinions which in reality do not disagree in any essential or in transcendency. But let us not forget what happened in other more serious epidemics, for example, in the cholera epidemic of 1885, during which no day passed without the appearance of some writing giving opinions the most stupendous concerning the character, form of propagation and treatment of the disease.

In order to judge of an epidemic scientifically, it is necessary that it should continue its development a sufficient length of time, and still better that it should have ended. The practicing physician fulfills his duty by applying his science and adjusting his conduct to it from the first day and in all the moments of the development of the disease. To the scientific societies and journals belongs the function of occupying themselves by preference with the exchange of opinions and with the explanation of reports as these go on forming; it is for this that they exist, if they enjoy the confidence and prestige due them. But there is an enormous distance between this and launching at the general public writings, reports, prognostications, which cannot be set going without risk of incurring censures often unjustified, since the haste of good desire and the exigencies of the times should attenuate them.

The Real Academia Nacional de Medicina has devoted its last two sessions to the discussion of this current theme; the debate was opened by Codina, who was followed by Huertas, Hernandez Briz, Grinda, Marañón and Pittaluga. From the brief but opportune and substantial utterances of these gentlemen, it is clearly evident that there is no doubt regarding the designation of the character of the disease, and that this constitutes an epidemic of grippe, influenza or *trancazo*, which are three names for the same disease. In regard to the laboratory investigations, which have a very different significance in the present moment of the epidemic, all that may be said is ephemeral and hasty, since neither are these the things which are improvised, nor are the existing micro-biological data which we possess with respect to grippe of a definitive and undebatable character, nor are the procedures of verification within reach of all hands.

That which is of import for the moment is that there exists accord in the designation of the disease and in the manner in which it is to be combatted.

[466] LASBENNES (15 June, 1918).—We present for the consideration of our associates the following table, in which are given the details of the mortality of Madrid in the month of May, day by day, grouped under the most interesting diagnoses of the certificates of death.

In view of the importance of the infecto-contagious affections, specially in infant pathology, we have thought it convenient to present them in separate columns, in order that the daily evolution of each one may be studied, although not one of them, as is clearly seen, has been influenced nor has exerted influence in the present sanitary state.

To avoid making the table unduly large, we have omitted malaria, which has few victims; May 21 one death occurred from this cause. We have done the same thing with erysipelas, in spite of its important streptococcic significance, because, under this diagnosis, only one died (May 29).

Under meningitis are included two deaths, May 8 and 16, from cerebrospinal meningitis, without further epidemic or meningococcic indication.

The intestinal infections have been few in number. Infantile enteritis we specify not only because it is a faithful reflex of the general state of these diseases, but also because, at the last of May, there sets in ordinarily an increase, which is augmented in June, reaching its greatest intensity in July. We think that, under the present circumstances, it is expedient to retain this.

Having stated these supplementary data of the demographic table presented, we will discuss the most salient facts which our statistics set in relief.

The most striking fact is the sudden elevation of mortality initiated May 27, after three days of slight increases, and reaching, May 31, the highest figure, 115, double the normal average for this period of the year. Although we shall not publish the data for June until after the end of the month, in order to be exact, we may anticipate to the extent of saying that in its first eight days the deaths have oscillated between 95 and 110, with a tendency to decrease, which was more clearly accentuated in the second week.

[467] During the summer and autumn of 1917 the mortality was low. An advance over the corresponding averages took place in November, December, January, February and March, with the peculiarity that it was proportionately less in those under five years;

the mortality was notably less in April, and in the first days of May (as may be seen in the table) there were some figures very low in proportion to the population of Madrid, which in spring and with a large floating mass brought to us by well-known causes amounts to about eight hundred thousand inhabitants.

*Mortality in Madrid in May, 1918.*—Totals\* by days only:

1, 45; 2, 28; 3, 42; 4, 36; 5, 33; 6, 33; 7, 38;  
8, 44; 9, 47; 10, 38; 11, 34; 12, 37; 13, 36; 14, 41;  
15, 45; 16, 35; 17, 42; 18, 40; 19, 41; 20, 41; 21, 41;  
22, 46; 23, 43; 24, 53; 25, 57; 26, 59; 27, 84; 28, 99;  
29, 91; 30, 98; 31, 114.

Totals by diseases: Typhoid fever, 6; typhus exanthematicus, 2; smallpox, 6; measles, 20; scarlatina, 1; pertussis, 15; diphtheria, 12; grippe, 77; tuberculosis, 226; cancer, 56; meningitis, 96; heart and cerebral hemorrhages, 54; organic heart diseases, 118; acute bronchitis, 37; pneumonia, 57; broncho-pneumonia, 164; infantile diarrhea, 56; nephritis, 43; congenital debility, 52; old age, 35; others, 356. Total, 1,561.

The second point, which stands out quite clearly, is that the sudden increase in mortality was produced in the affections of the respiratory tract and in the chronic cardiopathies in this order: broncho-pneumonia, grippe, tuberculosis, cardiac diseases and pneumonias.

It is an interesting fact that acute bronchitis, 80 per cent of the deaths, from which is always in the earliest infancy, shows a very slight elevation.

The third observation was noted in the table of ages published in the preceding number;\* the elevation of the mortality was proportionately less in those under five years and greater in those of 20 to 39 years.

In regard to the sexes, the proportion has been the natural one, because more males than females are born. The 1,561 deaths of May are divided: Men, 798; women, 763.

These are the facts which Madrid demography presents. We believe them of great importance for epidemiological studies. Naturally, this importance would increase and give precise orientations, if similar studies verified identical phenomena in other invaded localities.

\*Only totals are given here.

\*8 June, p. 458.

Terminating here our work of information, with its value more or less but positive, we will interpret it before we set forth some considerations which, to be exact, are very debatable.

First, we have to make public an ignored fact. In January, 1914, a phenomenon similar to the present one took place. The mortality had an exacerbation similar to this one, and also induced by the same mortigenic causes.

As the said month is always the one of the most deaths in Madrid from acute thoracic conditions, and as its extraordinary excess lasted little more than twenty days, no one thought of what was happening, each one supposing that he was the one who was cognizant of the greater degree of the winter exacerbation. No one that we know occupied himself with the occurrence. The certain thing is that the mortality, which in our city [468] oscillates around 1,700 deaths, reached the extraordinary figure of 2,070.

The analogy between what happened then and that which is taking place now; the rapid elevation of the mortality; the equality of the mortigenic causes; the brevity of the time in which the pernicious influence was sustained, and which now, by all indications—and may God grant it so—is going to be short also, makes us think that a cosmic, meteorological or telluric phenomenon has been the cause of both mischiefs.

That the defensive cells and the aggressive bacteria can be influenced directly or indirectly by the medium which surrounds us, is a thing which cannot be doubted. The sun, source of all terrestrial energy, is paradoxically the destroyer of many pathogenic microorganisms. The light rays, whose vibrations are more rapid than our retina can receive, especially the ultra-violet ones, kill the microbes, perhaps—pardon me the apparent absurdity of the phrase—by fulminant apoplexy. This being accepted, it could be supposed that an accident whatsoever of the physics of the globe could alter at a given moment the biologic equilibrium, favoring temporarily some species over others in the perpetual struggle for the monopoly of energy.

In the case which we are discussing, I believe that the influence has been indirect. The modifying agency has altered the respirable air in some of its components, known or unknown, and that, by insufficient excitation, has weakened the defenses of the respiratory tract.

From remote times has been observed empirically the depression

which the human organism suffers at dawn. This is appreciated especially in patients seriously ill. It is the revenge of the microbes. There are some rays *ultræquis* which favor them at our expense.

Be that as it may, we believe that this daily phenomenon, which is appreciated only in those who are at the extremity of their energies, perhaps by solar influence, sometimes—as at the present—is more intense and favors the bacterial attacks with intensity proportionate to the consumption of the initial energy which we possess.

In Madrid, according to my observations (although these require fuller verification), the larger part of the invaded were night-walkers and early risers—that is to say, those most exposed to the afore-said sidereal effect fortuitously augmented.

Children, who with some exceptions retire early and rise late, have been slightly afflicted, and instead the victims have been registered in the ages in which, for pleasure or of necessity, one lives during the hours mentioned.

Whether these appreciations hit the mark or not, unquestionably medicine ought to occupy itself more than it has done with meteorogno-  
sny, because, united to the laboratory and to the clinic, it will be able to give us the key to some facts hitherto hardly explained.

And abandoning the land of hypotheses with which I have imprudently meddled, I am going to close, permitting myself to counsel my colleagues that, profiting by the preoccupation which every epidemic begets among the people, they carry to an extreme their advice on diet, not because it influences the actual evil, but to prevent—given the period into which we are entering in which the estival enterites begin to develop their mischiefs—a change in the place of least resistance, which would cause great evils.

[518] MADRID SANITARY REPORT (29 June, 1918).—The condition of public health keeps on improving in Madrid, although it is too early to assert that the grippal epidemic has disappeared completely. While it is certain that the number of acute and benign cases is very small, the pulmonary and congestive forms and the complications in the chronic ailments continue to give the specific character of the same. The mortality is reduced to the figures usual at this season of the year.

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## THE INGUINAL APPROACH IN THE CURE OF FEMORAL HERNIA.\* †

By LUCIAN H. LANDRY, M. D., F. A. C. S., New Orleans.

The impression prevails in many minds that the cure of femoral hernia is a simple procedure and that all that is necessary to attain a cure is simply to obturate the saphenous opening by bringing together adjacent tissues in the vicinity of the hernial orifice, after ligating the sac as high as possible. That an anatomical knowledge of the field is absolutely unnecessary, and that recurrence is as rare as in inguinal hernia, are prevalent misconceptions that should be cleared from the surgical horizon before any attempts to describe operative technic are seriously considered.

The radical cure of femoral hernia, just as in inguinal hernia, depends upon four fundamental principles: First, a clear anatomical exposition of the field; second, high ligation of the sac; third, snug closure of the internal ring, followed by adequate myoplasty; fourth, aseptic wound-healing.

The high percentage of recurrence in femoral hernia is best shown by the following statistics:

According to Coley,<sup>1</sup> who has had an exceedingly large experience in herniæ of all kinds in the Ruptured and Cripple Hospital of New York, "up to 1890, the results of operation in femoral hernia showed about 30 per cent of recurrences." Bresset,<sup>2</sup> in a study of 395 femoral herniæ, found that in 232 cases that were operated without closure of the femoral ring, 29 per cent recurred, and in 163 cases operated with closure of the ring, 8.6 per cent recurred. According to Potts,<sup>3</sup> in 422 cases there was a recurrence in 36.7 per cent in the cases where the ring was not closed, and 28.4 per cent recurrence in those that were closed.

Moschowitz<sup>6</sup> reports a case which he operated in 1904 by the method of DeGarmo. In 1906 he did a laporotomy on the same patient, examined the hernial site from the abdominal side, and to his surprise could introduce his index finger to a depth of two inches, practically to the saphenous opening. This case examined externally would be classed as a cure, still it presented the possibility of a strangulation.

That the cure of femoral hernia has been quite a problem in the minds of surgeons for the past forty years or more cannot be doubted

\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

†Contribution of the Surgical Division of Tulane University, School of Medicine.

if we but look over the literature on the subject. While there have been comparatively few methods advocated for the cure of inguinal hernia, the number of procedures advocated as a radical cure for femoral hernia is appalling. The very exhaustive and complete work of Robert Didier,<sup>4</sup> in 1912, bringing the literature on the subject up to date, contains an index of 158 publications on the subject—84 in French, 43 in German, 20 in English, and 11 in Italian.

In 1896 Tuffer<sup>5</sup> counted twenty-nine methods in use or advocated for the cure of femoral hernia, while in 1907 Moschowitz<sup>6</sup> found over seventy methods and modifications. I will not try to enumerate the various procedures advocated, but will rapidly mention a few methods which have been more or less popular.

In 1871 Widenham-Maunsell<sup>7</sup> advocated median laparotomy to reduce femoral hernia when strangulated or incarcerated, and the closure of the ring from within. This was also advocated by Anandale<sup>8</sup> in 1878. Tait,<sup>9</sup> in 1883, concluded that the radical cure of all herniæ other than umbilical should be done by abdominal section and that this route should be used even to treat strangulated hernia.

Socin,<sup>10</sup> according to Jaboulay, in 1879 claimed good results by simple high ligation and extirpation of the sac and inverting the skin, without attempting to close the femoral ring. Mitchell-Banks<sup>11</sup> and Ochsner<sup>12</sup> do not close the ring. Billroth<sup>11</sup> (quoted by Camson) incised the sac without extirpation and without closing the ring. Berger,<sup>13</sup> after high ligation, leaves the strands long, arms them with needles and transfixes the abdominal wall, tying on the external oblique, just as Barker<sup>14</sup> advises in inguinal hernia. This is followed by a double pursestring suture, closing the femoral ring on the inner and outer side. Ball,<sup>10</sup> in 1887, advocated torsion of the sac. Tricomi,<sup>15</sup> Lucas Championniere,<sup>16</sup> Boltini,<sup>10</sup> Richelot,<sup>17</sup> Lockwood,<sup>18</sup> Coley,<sup>1</sup> Cushing-Marcy<sup>1</sup> and Wood use pursestring suture of the orifice after high ligation of the sac.

Bassini,<sup>19</sup> with an incision parallel and slightly beneath the crural ring, ligates the sac as high as possible. With interrupted sutures, Poupart's ligament is united to the pectineal fascia; then the falci-form fascia is joined to the pectineal fascia, the lower suture entering just above the saphenous vein. DeGarmo's<sup>20</sup> method is practically the same as Bassini's, except that a smaller number of sutures are used to accomplish the same purpose.

Fabricius and Trendelenburg<sup>21</sup> (according to Jaboulay and Patel)

suggested obturating the femoral opening by a bone flap turned down from the anterior portion of the pubic bone. Theriar<sup>22</sup> (according to Jaboulay) used a portion of the head of a humerus which he had just resected to obturate the femoral opening; the same author ordinarily used decalcified bone. Chaput<sup>23</sup> used a fragment of costal cartilage for the same purpose, while Green<sup>24</sup> used a piece of the eleventh rib, two inches long, to bridge over a large femoral opening. Schwartz placed a tampon of catgut in the crural opening to induce a "cicatricial stopper." Thompson<sup>25</sup> used celluloid filigree for this purpose, while Phelps<sup>26</sup> (according to Lance) used wire filigree. Roux<sup>27</sup> (de Lausanne) used a staple to bring Poupart's ligament to the pubic bone; Lerat used a screw to accomplish this result.

Nicoll and Hammesfohr<sup>21</sup> bore holes in the pubic bone through which they suture Poupart's ligament to the pubic bone. Fabricius<sup>28</sup> and Delageniere<sup>29</sup> advise partial or complete division of Poupart's ligament to allow it to be attached to the pubic bone. Salzer<sup>30</sup> used the aponeurosis of the pectineus as a "stopper" for the femoral ring, while Watson-Cheyne<sup>31</sup> used the pectineus muscle, denuded of its aponeurosis, for this purpose. De Garay<sup>10</sup> used the sartorius. Poullet<sup>32</sup> utilized the tendon of the adductor longus. Schwartz,<sup>33</sup> the adductor brevis, with a large pedicle. Witzel and Dawborn<sup>21</sup> also advocate muscular aponeurotic flaps. Chaput<sup>34</sup> used an adipose pediculated graft in large femoral hernia.

The inguinal approach in femoral hernia was first advocated by Annandale,<sup>35</sup> who in 1876 operated a patient with an inguinal and femoral hernia on the same side. He opened the inguinal canal, reduced both herniæ, suturing Poupart's ligament to Cooper's ligament, then closed the inguinal hernia.

Zuckerkandl,<sup>36</sup> in 1883, after cadaveric research, advocated the inguinal route in strangulated hernia. These contributions toward the radical cure of femoral hernia went practically unnoticed until 1892, when Ruggi<sup>37</sup> published a complete technic for surgical intervention in femoral hernia by the inguinal route. The year following, Parlavecchio<sup>38</sup> offered a modification of Ruggi's method. Tuffier,<sup>39</sup> in 1896, popularized the method in France; Gordon,<sup>40</sup> of Dublin, in 1900 advocated the inguinal route, suturing the internal oblique and transversalis to Cooper's ligament. Guibe and Proust,<sup>41</sup> in 1904, suture the internal oblique and transversalis to Cooper's ligament after completely dividing Gimbernat's ligament. The in-

guinal route of approach has also been advocated by Codivilla<sup>42</sup> and Magni in Italy; in Germany and Austria by Lotheissen,<sup>43</sup> Foderl,<sup>44</sup> Reich<sup>45</sup> and Frank;<sup>46</sup> in England by Fagge<sup>47</sup> and Gordon;<sup>40</sup> in Roumania by Bardescu;<sup>48</sup> in France, after Tuffier-Berard<sup>49</sup> (twenty-five cases by "double rideau"), Vallas and Perrin<sup>50</sup> at Lyon (inguinal method without closing crural ring), Chaput,<sup>51</sup> Dujarier<sup>52</sup> and Demarest<sup>53</sup> at Paris.

Dujarier reports thirty-one cases of femoral hernia operated by inguinal route with no recurrence. He makes it a practice in all inguinal hernia, when he opens the sac, to put a finger in and examine the femoral opening. In two cases he found small herniæ that had escaped the clinical examination. Dr. Matas first used the inguinal method in New Orleans in 1893, shortly after the publication of Parlavecchio.

Moschowitz,<sup>6</sup> in 1907, published a technic in America, giving full detail of closing the femoral opening after high ligation of the sac by suturing Poupart's ligament to Cooper's ligament. Seelig and Tuholske,<sup>54</sup> in 1914, published an excellent article in *Surgery, Gynecology and Obstetrics*, giving a full, well-illustrated description of the technic by the inguinal route, with a supplementary note on Cooper's ligament. In describing the technic of the inguinal operation and Cooper's ligament, I shall draw largely from this article. In 1915, J. D. S. Davis,<sup>55</sup> of Birmingham, Ala., read a paper before the Southern Surgical and Gynecological Association on the Moschowitz operation, using largely the illustrations of Seelig.

To understand the inguinal mode of approach in the cure of femoral hernia, one must have a thorough understanding of the anatomy of the pelvis, and especially of Cooper's ligament, as this structure plays a large part in the myoplasty.

Testut<sup>54</sup> (quoted by Tuholske) describes Cooper's ligament as follows:

"The superior border of the pectineal crest is covered by a sort of fibrous cord, very thick, very dense, very resistant, intimately adherent to the bone, and extending from the spine of the pubis to the ileopectineal eminence. This is the pubis ligament of Cooper, or, more simply termed, Cooper's ligament."

Poirier and Charpy<sup>54</sup> (also quoted by Tuholske) furnish the following description of the ligament:

"The ileopectineal line of the pubis marks the point of fusion of various fascial layers: the pectineal fascia, Gimbernat's ligament, behind this the posterior pillar of the external ring, and finally the trans-

versalis fascia, reinforced by the ligaments of Henle and Hesselbach. Thus the angular bony edge overlaid by all these insertions is transformed into a rounded cord, which is given the name of the pubic ligament of Cooper—'Cooper's ligament.' "

TECHNIC.—The technic that I have employed in eight cases operated since 1915\* is practically the same as that described by Seelig, consisting of the following: An incision is made, the same as that used to close an inguinal hernia, except the lower end approaches the pubis more. The incision should be from three to four inches in length, and, if necessary, may be continued on down the thigh, if this is found necessary by a very adherent sac. Next, the external oblique is divided in the direction of its fibers by splitting up the external abdominal ring. By pulling up the superior flap of the external oblique the conjoint internal oblique and transversalis are brought into view. These are retracted upward; the inferior border of the external oblique is retracted downward, bringing Poupart's ligament into view. The round ligament, or the spermatic cord in the male, is retracted upward. Strong retraction at this stage gives a very good exposure and brings the transversalis fascia into view—a thin layer of fascia lying immediately anterior to the peritoneum. This fascia is incised in the line of the original incision and picked up with the retractors. Retraction will here bring the neck of the sac into view. The deep epigastric artery is generally encountered here, at the outer margin of the incision; should it run an anomalous course it may be divided between ligatures.

The sac is now gently pulled (provided the case is not one of strangulation) in an effort to transform the entire hernial sac and its contents into an inguinal hernia. Should you be dealing with a strangulated hernia, or in the event that the sac is adherent in its bed, the sac is opened, contents returned to the abdominal cavity (if healthy), adherent omentum separated and ligated; a curved forceps is then introduced into the sac, down to its lowest point, the end caught and the sac inverted. Should the sac be too adherent, the skin incision may be here extended down the thigh. The sac is now tied off by a transfixion ligature or suture, as high as possible, to guarantee against leaving a dimple, protrusion or any other variety of potential hernia.

The next step is the closure of the femoral ring. We find the boundaries of the femoral ring to be: anteriorly, Poupart's ligament; internally, by Gimbernat's ligament (covered by a reflection

\*Two cases operated under local anesthesia since the reading of this paper.

wire filigree. Roux<sup>27</sup> (de Lausanne) used a screw to accomplish of the transversalis fascia); posteriorly, by Cooper's ligament; and externally, by the external iliac vein. With a small, full-covered needle armed with chromic No. 2, a deep bite is taken through Cooper's ligament down to the periosteum, while the external iliac vein is protected and drawn outward gently by the index finger of the left hand; another bite is taken through the lower flap of the transversalis fascia and the edge of Poupart's ligament. Two like sutures are placed internal to the first, the most internal picking up Gimbernat's ligament in its bite. When these sutures are tied they bring Cooper's ligament in contact with Poupart's ligament, completely closing off the hernial orifice.

The rest of the operation consists in closing the abdominal wall, just as we would in an inguinal hernia.

This operation is probably longer than by the ordinary crural incision, in so far as we do a femoral and an inguinal hernia combined, but it has the added advantages of (1) a clear and distinct exposure of the anatomical field; (2) high ligation of the sac is assured; (3) secure closure of the femoral ring is accomplished; (4) the second or abdominal incision is not necessary (as is advocated by many authors when the crural route is employed) when dealing with a strangulated hernia.

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### DISCUSSION ON THE PAPER OF DR. LANDRY.

**Dr. E. Denegre Martin**, New Orleans: I am very glad Dr. Landry has brought this subject before us for discussion. He has enunciated a simple principle, which was not clearly understood before, due, to the fact, probably, that in the beginning, when most of the operations were suggested for the cure of femoral hernia, there was the fear of entering the abdomen, and then the inguinal canal was looked upon as complicated, and with the fear of a resulting inguinal hernia. My attention was first called to the importance and necessity of operating on these hernias by a suggestion made by Dr. Ochsner some years ago, when he claimed that if you could close the sac entirely in a hernia the hernia would remain well; it made no difference what kind of a closure you made afterwards, provided, of course, you approximated the wall. In a femoral hernia you have a femoral canal half an inch in depth. It is impossible to proceed from the outside and close that canal entirely; it makes no difference what operation you do. We may, by suturing the fascia, which is usually done, and resecting the thing, hold it for a long time, but in 30 per cent of the cases recurrence takes place. I can understand that easily. What do you do? You simply close the sac and return the contents and leave the furunculus just as you have a funnel-shaped opening in an abdominal wound. You have the identical condition which originated as the hernia appeared, and you will have a recurrence of the hernia unless the ligaments are sutured together to hold it. If you can at once close that entirely so that you have a perfectly smooth surface on the inside, I do not know that it is necessary to suture the ligament fibers inside. You can invert the sac, and in the cases I have had it has not been difficult. In two cases operated on for other conditions in which I found an incarcerated hernia, I was able to catch the sac from the inside, invert it and suture it, and there has been no recurrence in those cases. These cases occur in women, because the canal is quite large. I have never seen but one femoral hernia in a man, but I have seen fifteen in women. In the first three I operated on the hernia recurrred. I did not know why until I investigated the thing. The last case held for three or four years. In nine of these cases I went through the abdominal route, which you can do quite well. It is not so difficult. You can retract the abdominal walls, and with a little manipulation invert the sac, ligate, close the canal, and you have accomplished your whole purpose, and Ochsner claims that the canal eventually closes entirely and there is no further

trouble. The principle is simple, and I do not know why we did not grasp it and appreciate it sooner.

**Dr. C. P. Gray, Monroe:** There are one or two questions I would like to ask the doctor. In the first place, I want to thank him for the concise manner in which he has presented this subject.

After you have ligated the sac, I would like to know whether you have ever followed the plan adopted by Dr. E. Wylls Andrews, of Chicago, of putting in a half pursestring suture, going in through the ligament and letting it go through the layers and coming out above?

The next question is, what has been your experience in closing the inguinal ring? When you have closed the femoral hernia, what have you done with the red muscle, or have you used the red muscle in lapping over and closing the inguinal ring?

**Dr. Lucian H. Landry, New Orleans (closing):** I wish to thank Dr. Martin for saying in a few words what it took me quite a long time to say.

The thing that brought this route to my mind especially was a ticklish occurrence. The last case I operated on by the crural route was one of strangulated hernia. I attacked it from below and I had to cut Gimbernat's ligament to relieve the constriction. When I did so the bowel shot back into the abdomen. I fished for it with a sponge-holder; I did not catch the loop of intestine, that was apparently down in the canal, but at any rate the loops I pulled down were healthy. I thought I would try to prevent a recurrence by anchoring the sac higher up, as advocated by Berger, using a transfixing ligature and putting it upon the abdominal wall. This was done. The patient did well for six hours, wanted to urinate, but could not, and the passage of a catheter showed a little blood. I figured that my suture had gone into the bladder. It worried me some. I waited a little while, then distention started. So I got anxious. I called Dr. Matas to my aid. We opened the abdomen and found just a little knuckle of bowel had been strangulated (Richter's hernia); we resorted to resection and anastomosis, and left a suprapubic bladder fistula. It was a good thing for the patient that I had to go away the next day, and Dr. Matas looked after the case, the patient finally making a good recovery.

So far as the question of Dr. Gray is concerned, in closing the inguinal hernia, you do it the same, whether you resort to a Bassini or a Ferguson operation. We have been doing the so-called Ferguson-Andrews operation by not transplanting the cord. After you have ligated the sac high up it is identical with the inguinal hernia operation.

## THYROIDECTOMY UNDER LOCAL ANESTHESIA.\*

By CARROLL W. ALLEN, M. D., New Orleans.

This discussion will deal principally with exophthalmic goiter, as the operative technic of the simple colloid goiter under local anesthesia presents no special difficulties, and the steps are identical with the two types; only when a colloid goiter is unusually large is any variation in the technic necessary.

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To satisfactorily and intelligently operate under local anesthesia we should first become thoroughly familiar with the source and distribution of the nerve supply of the region. This is one of the fundamental factors of success, as I have often said before in discussing these subjects, local anesthesia makes of us nerve anatomists.

The skin of this region is supplied by the superficialis colli nerve formed by branches from the second and third cervical, which emerges from behind the posterior margin of the sternomastoid muscle and curves forward just above the point where the external jugular vein passes over this muscle, and, passing forward beneath the jugular and platysma muscle, divides into branches which supply this muscle and the skin of the anterior region of the neck from the chin to the sternum.

Beneath the area of distribution of this nerve we come to that supplied by the loop formed by the descendens hypoglossi and the conjoined branch from the second and third cervical nerves, which descend from the upper part of the neck upon the carotid sheath and supplies the sternothyroid, sternohyoid, both bellies of the omohyoid and the anterior surface of the thyroid gland.

The third and last source of nerve supply is that to the under surface of the thyroid gland; this is from the deep branches of the cervical plexus, from the nerves that supply the longus colli, rectus lateralis and other prevertebral muscles.

These nerves are all small branches and pass forward to the under surface of the gland.

This completes the nerve supply of the region, and we should now be able to intelligently proceed to block off this region quickly, methodically and with a minimum of anesthetic solution. Should discomfort be complained of at any point we should be able to determine its source by the depth at which we are working and relieve it immediately by additional injections at the indicated point, and not by aimlessly injecting in all directions in hopes of catching the offending nerve.

In discussing the injection of any region, it is understood that certain refinements of technic should be made use of, such as establishing an intradermal wheal with a fine needle at any point at which a larger needle may be entered for deep injections, and in very sensitive patients the skin may be frozen before making this first wheal. Also, in making deep injections or advancing the long needle through the tissues to any desired point, to progressively inject the solutions as the needle is being advanced.

Knowing our nerve supply, we can now proceed intelligently to block off the operative field. For the skin, we have the choice of two methods, both of which I make use of.

We may block the superficialis colli where it curves over the sternomastoid by passing a long needle down to the deep fascia over this muscle, just behind the point where the external jugular passes over this muscle, and directing the needle upward in the long axis of the muscle, injecting this area quite freely for about one and one-half inches, using about 5 to 10 c. c. of solution. This injection, when properly made, will reach all branches of this nerve and give us a superficial anesthesia down to the deep fascia and extending almost from the chin to the sternum. The same procedure is repeated on the opposite side.

The other method of superficial anesthesia, and the one more commonly used, is to make a fairly free subcutaneous injection along the proposed line of incision. This is best done by making a skin wheal in the mid-line of the neck and, entering a long needle at this point, injecting first to one side, then withdrawing the needle and directing it in the opposite direction.

Having satisfactorily anesthetized the superficial parts, we now turn our attention to the deeper parts supplied by the loop formed by the descendens hypoglossi and second and third cervical. It will be seen, by considering the course and distribution of this nerve, that it can be effectively blocked by an injection made down to the carotid sheath, above the field, in the lower part of the superior carotid triangle, entering the needle just above the omohyoid muscle and making the injections just beneath the deep fascia, when it will diffuse in all directions, reaching the nerves as they come downward and forward. For this purpose, the long needle is entered near the outer extremity of the subcutaneously infiltrated area, should this method have been used, or, if the superficialis colli has been blocked, at any point near the lower part of the superior carotid triangle. As the needle is advanced down to the carotid sheath, the solution should be injected continuously as the needle is being advanced. If the needle is of small caliber, with sharply beveled point, no damage should result from contact with a vessel. It is, however, a good precaution, when making an injection in the neighborhood of large vessels, to aspirate slightly before making the injection, to determine whether or not a vessel has been entered. This injection, when properly made, is free from danger, but the oper-

ation may defer this step until this skin flap has been raised, which gives a slightly closer approach to the area of injection.

Having made the skin incision and retracted or divided the thyroid group of muscles, as may seem necessary, the anterior surface of the gland is thoroughly exposed, permitting the needle to be passed under its lateral edge at two or more points, infiltrating the cellular tissue behind the gland, thus reaching the deep group of nerves to its posterior surface.

This completes the anesthesia, and the enucleation or resection of the gland can now be proceeded with by any method preferred by the operator. Its posterior capsule and a small piece of the gland, about one-sixth or one-eighth of its total, should always be left in place, for obvious reasons. For my own part, I always prefer to divide the isthmus first when operating under local anesthesia, and roll the gland out away from the trachea, thus avoiding the repeated disturbance to this part from traction on other parts of the gland, which is always quite disturbing to the conscious patient. Another advantage in dividing the isthmus first is that the gland can be rolled outward and lifted from its bed with more facility, as it is unattached at any other points except by vessels and fascia, and, as the gland is lifted up, the vessels on its under surface can be readily seen and ligated, and the danger to the recurrent laryngeal nerve greatly lessened.

There are many little refinements of detail and technic, which can hardly be brought out in a paper of this kind, which apply in a general way to all operations under local anesthesia.

This subject is never complete with a simple discussion of the operative technic, as there are other things to be considered. It is not advisable to operate upon all cases, and some operations have to be performed in stages. Very severe cases, when suffering from edema, ascites, dilated heart, diarrhea, gastric crisis of vomiting and other visceral disturbances, should not be operated at once, but kept under observation, with rest, ice bags and other indicated treatment, waiting for a lull in the symptoms. Many of these severe cases have suffered permanent injury to the heart, kidneys and other organs. It is consequently always desirable to operate as early as possible in all cases which do not yield to medical treatment.

It is doubtful if severe cases should ever have the complete radical operation of double resection or lobectomy done at one time, but it

is safer to do one side at a time, allowing one or two weeks for recovery, when the other side may be done.

In quite severe cases, too sick to attempt the radical resection of a part of the gland, but yet capable of standing a limited amount of surgery safely, we can often accomplish a decided abatement of the symptoms by ligating one or both poles of the gland. This, when properly done, often accomplishes much good and allows the patient to recover sufficiently to permit the safe resection of a lobe.

To properly ligate the thyroid pole, an incision can be made across the neck at the proper level, or I often prefer an incision on the inner side of the sternomastoid, exposing by blunt dissection the pole of the gland, when a silk or linen ligature on an aneurysm needle is passed around the upper extremity of the lobe embracing arteries, veins, nerves and a small portion of the tip of the gland, tying the ligature quite firmly. Catgut is objected to for this purpose, as it may be absorbed too early. The vessels should not be dissected out and ligated singly, nor should the ligature be placed above the pole of the gland, if the best results are to be accomplished, as the anastomosis between the vessels of the upper and lower pole is quite free, and unless done in the proper way the circulation is compensated quite early and our object defeated. Much improvement often follows this ligation, and in some cases the improvement is so marked that the patient objects to further operative intervention; but this is a serious mistake, and advantage should be taken of this lull to perform the resection, which should be done in from one to two or three weeks following the ligation.

The psychical effect of any operative procedure upon these cases is often considerable, and they suffer acutely from fear, which increases the blood pressure and heart activity, thus greatly stimulating the activity of the gland and increasing all the toxic symptoms. It is consequently better to keep these cases in the hospital a few days before operation, not letting them know exactly when it will be performed. During this time they should be kept absolutely quiet in bed, free from visitors and other disturbances, with an ice bag continually to the neck, avoiding meats, coffee, alcohol and all stimulants in diet. As these patients have absolutely no control over their emotions, and as fear is largely a psychical manifestation, it is highly desirable to control the psychic functions by a large dose of some opiate before going to the operating room. I do not like morphin in these cases, as it sometimes excites them and does not

exert any hypnotic influence; scopolamin is also objected to for similar reasons. Pantopon, representing the entire active principles of opium, makes the ideal hypodermic, using from one-half to two-thirds of a grain about one hour before the time set for the operation. This dose is sufficient to render the patient dull, apathetic, and inclined to sleep when left alone; the patient is thoroughly conscious, but just enough under the control of the drug to be listless and indifferent—an ideal state for operation, when it is highly important to have under control all psychical disturbances. These are the essential points in the surgery of this condition under local anesthesia.

Its advantages are many. When handling these cases in this manner, the danger is greatly lessened, general anesthetics favoring edema of the lungs, and renal suppression in bad cases, and by the vascular congestion which they induce, greatly increase the toxic activity of the gland. With local anesthesia, which is now used always in conjunction with adrenalin, we have the opposite condition, ischemia, which greatly lessens the activity of the gland, and especially at the time when it is desirable to have it under control. The recovery following operation is greatly facilitated when done under local anesthesia, as the patient can at once begin to take water freely to flush out the emunctories and more rapidly relieve the toxicity.

Before closing, I would like to call attention to the enlargement of this gland, which often occurs in young girls about the age of puberty, before the menstrual function has been regularly established, and is often associated with mild toxic symptoms. In these cases we should not operate too hastily, as the condition will usually subside under proper treatment directed to the regular establishment of the menstrual function.

#### DISCUSSION OF DR. ALLEN'S PAPER.

**Dr. L. H. Landry:** Dr. Allen has undoubtedly brought out the most difficult type of goiter to treat with local anesthesia; almost any one with a little experience in local anesthesia can remove a colloidal or cystic goiter without much discomfort to the patient. The utmost care must be exercised in the exophthalmic or highly nervous type. If you take any patient with a moderately developed exophthalmic goiter into an operating room you will find a jump of approximately twenty beats in the pulse rate as compared to the rate while in bed. For this reason this type of patient should never be wheeled into the operating room without a blindfold, or allowed to see the nurses, assistants and instruments. While operating, it is very bad practice to be calling for a knife, scissors,

clamps, etc.; the less conversation (except to reassure the patient) the better. For this reason, local anesthesia is not a good amphitheater procedure, but should be conducted in a small room, with as few assistants and little noise as possible. While we are very partial to local anesthesia, and have used it a great deal in all types of goiter, I am reminded of a very tragic experience we had some years ago with an exophthalmic goiter. The patient had had a polar ligation performed and was kept in the hospital some three or four weeks before the second operation was undertaken. She was brought to the operating room with a towel over her eyes and put on the operating table; we wanted to get the benefit of gravity anemia, and instructed one of the interns to elevate the head of the table; the gentleman handling the table was not familiar with its mechanism, and allowed the table to come up suddenly; this startled the patient, and at once her heart began to "run away." We tried to reassure the patient in every way that there was no harm done, but to no avail. Her heart stopped suddenly, and in spite of everything that we did, including heart massage, the patient died before our eyes, before anything surgical, even the introduction of a hypodermic needle, was attempted. This patient absolutely died of fright.

With an experience like this, one cannot fail to be impressed with the gravity of these cases and the care that must be exercised in using any kind of anesthesia.

Recently we have been using Gwathmey's ether-oil rectal anesthesia, started in the patient's room, and have had uniformly good results, from an anesthetic and operative standpoint, in the severe types of exophthalmic goiter. I think that this convenient and comparatively safe mode of anesthesia, properly administered, should be kept in mind when dealing with the highly nervous individual.

**Dr. H. E. Bernadas:** To say we appreciate Dr. Allen's paper is putting it very mildly, because Dr. Allen is not only a pioneer in the study of local anesthesia, but, to my mind, is a master. Therefore I have no hesitancy in asking Dr. Allen if he would tell us his choice of a local anesthetic, and if he would explain to us the comparative value of the use of apothesine and novocain.

**Dr. L. Sexton:** Several years ago I reported before this Medical Society a large colloidal thyroid removed with local anesthesia. Owing to the extreme age of the patient and her condition, she could not take a general anesthetic. She had not been able to recline in bed at all for quite a number of months, and as a result had bed-sores. The pressure ulcers had formed, as she was constantly sitting in the upright position. I did not desire to operate on the patient at all, and told the family that laying her flat on the table, just as Dr. Allen has explained, might be fatal; that we could not give her a general anesthesia, and would try local anesthesia. I did not understand then the neural anatomy of the part as the doctor so nicely explained to-night, but adopted the plan of local anesthesia as in vogue at the time. One per cent solution of cocain was injected after making a wheal in the skin line of the incision, and then made a cut, which had to be rather large on account of the great size of the goiter. After the upper pole of the goiter had been released I worked from the upper part down, injecting into the deep fascia behind the tumor 1 per cent novocain, as required. She was given one-eighth grain of morphin one hour before operation. The case was reported in the *New Orleans Medical and Surgical Journal* several years ago. The old lady is enjoying good health.

I wish to thank Dr. Allen for giving his technic. I am pleased to have been here to hear his timely paper at this time.

**Dr. Allen** (closing discussion): The choice of a local anesthetic is, of course, a very important one. I avoided saying much about it because, as soon as one talks about the different solutions, there is a great deal that might be said. Novocain is unquestionably the peer of local anesthetics. We adopt cocain as a standard, because it was the first local anesthetic discovered, being introduced to the profession in 1884 by Karl Koller in the Ophthalmological Congress at Heidelberg, and all of our local anesthetics date from that time. Novocain is just about one-seventh as toxic as cocain, and is non-irritating to the tissues. The addition of adrenalin to the solution renders it more efficacious, but care should be exercised as to the amount used, not more than five drops being used to each ounce. I recall being asked to see a patient, by a confrère, who was said to be suffering from the effect of cocain poisoning. It was distinctly a case of adrenalin poisoning, as he showed no effects of cocain. The use of too strong solutions of adrenalin also frequently causes sloughing of the parts, due to acute vasoconstriction of the vessels, which produces ischemia of the part. This is especially apt to occur when used in large areas. As regards the efficacy, I place novocain first on the list, eucain second, apothesine third, and cocain last, on account of its toxicity. (This is based on personal experience and experiments which I have made.) The addition of sodium chlorid, in order to make an isotonic solution, is a great advantage. Scleich, who is really the father of local anesthesia, used this in his solutions, when he employed 2.10 per cent, which I have thought better doubled, and in all my solutions I recommended the addition of 4.10 per cent.

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## RETRO-PHARYNGEAL ABSCESS.\*

By M. P. BOEBINGER, M. D., New Orleans.

Vanity is an heirloom possessed by many; honesty by few. Man has always accused the female as being the proud possessor of this keepsake. The human family is weak when it comes to accepting successes and is prone to push forever into oblivion their failures. It is, therefore, with this idea in view, that the author reports the loss of a child to this fraternity, fully realizing and understanding that they, too, are the victims of this dreaded and incurable disease known as "failure." The younger man must always look forward to his older and more experienced colleague to take the lead and report such failures as must eventually prove the great barrier to the onward march of the young, ambitious practitioner.

*Early History.*—The first mention of this affection dates back to the second century of our era, when Galen relates a case in his own experience. Since then, no mention seems to have been made

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\*Read before the Orleans Parish Medical Society, September 23, 1918. [Received for publication, October 2, 1918.—Eds.]

in the medical literature until the middle of the eighteenth century, from which time until now very little has appeared in our literature. Bokai, of Budapest, has collected over five hundred cases, but there exists not even a monograph on "Retro-Pharyngeal Lymph Adenitis" in English.

There is a rather prevalent belief that retro-pharyngeal abscesses are seldom encountered, except in children, and that caries of the vertebra due to cervical Pott's disease is the chief cause of this condition. That such a belief should be so widely held is probably due to the fact that the condition is often overlooked, except in the case of tuberculosis of the cervical vertebra, when its possibility is always kept in mind and when its diagnosis is comparatively easy. Irrespective of retro-pharyngeal abscesses often seen in adults, it is essentially a disease of infancy and early childhood, and when recognized early and treated surgically and skilfully should end in a speedy recovery. When complicated and secondary to middle-ear disease it should be regarded as of critical importance.—Prof. Jacques, Nancy.

*Ages When Seen:* Koplik reports a series of seventy-seven cases occurring between the ages of twenty-one months and five years, the greater majority (41 cases) occurring between the ages of six and twelve months. Billings and Wilson report death of a man eighteen years of age; Man reports death of a man of thirty-three years; Meierhof speaks of death in infant; Cline reports death of man fifty-seven years of age; Klug reports death of a young girl due to erosion of carotid artery; Dr. Carter reports death of infant eight months; Dr. Charlton reports death of child eight years of age; Meierhof claims to have seen fifty cases of retro-pharyngeal abscesses, all patients were under three years of age; Herrold reports case of young woman of twenty-two years of age, previously healthy; Moore reports a case in a man aged forty years; Dunn, one in a man aged sixty-two years.

*Etiology.*—The cause is sometimes very obscure, although occurring, as it does, most frequently in the poorly-nourished and rachitic, it is occasionally met with in patients who have previously been perfectly healthy. Any of the acute inflammatory diseases of the nose, mouth or pharynx may be a predisposing cause. Some authors have reported seeing retro-pharyngeal abscesses following operative procedures in the nasopharynx and pharynx. Retro-pharyngeal abscess may be acute or chronic. It may be situated in the mesopharynx, in the hypopharynx, or in the epipharynx.

There is an infection beneath the mucous membrane. The morbid bacteria gain entrance through the lymph vessels, the atrium of invasion being in one of the neighboring tissues which is diseased; tonsillitis, a post-operative tonsillar wound, a tuberculous tonsil, tuberculous cervical glands, caries of the vertebra, lues, acute coryza, infectious diseases of infancy and childhood. Koplik has isolated four distinct species of the streptococcus which he says are the micro-organisms present in the pus of these abscesses.

*Anatomy.*—Behind the pharynx and esophagus a species of cavity exists, bounded posteriorly by the mucous and fibro-muscular wall of the pharynx and on the sides by the lateral aponeurosis. This cavity is baggy and in the midst of areolar tissue. It extends from the base of the skull to the mediastinum. Inside this cavity lie the lymphatic glands, first described by Gillette and called Gillette's glands. The median fibrous raphe, the common point of meeting of the constrictors, divides the post-pharyngeal region into two retro-pharyngeal spaces. The larger vessels and nerves of the neck are found laterally to this space. The greatest interest should be attached to these "lymph nodes," for they receive the lymphatic vessels from the nose, post-nasal space, pharynx and deep cervical region.

Infection may start from any of these organs and focus itself in the retro-pharyngeal glands. The important point is that the lymphadenitis is the essential lesion in a retro-pharyngeal abscess of acute form. Gillette's glands differ in no way from those which compose the rest of the chain known as Waldeyer's ring. This chain drains all the cavities of the face, nares, region of the Eustachian tubes, pharynx, and is in direct connection with the lymphatics of the middle ear. The probable cause of so few cases being reported in adults is perhaps due to the early quiescence or atrophy of these glands.

*Symptoms.*—The vast majority of retro-pharyngeal abscesses are found in early life, few occurring after five years of age. At this period there is a large number of catarrhal diseases of the nasopharynx. Every one is acquainted with the retro-pharyngeal lymphatic nodes, but the occurrence of septic infection of these masses of gland tissue in association with suppuration of the ear seems to have escaped general attention. Yet, in infants particularly, the combination is by no means uncommon, and even in adults unilateral swelling of the posterior pharyngeal wall, probably

adenitis which has not come to abscess formation, is not uncommon in suppuration of the middle-ear. Septic adenitis in this situation, however, may plausibly be ascribed, not to infection from the middle-ear, but to infection from the nose or nasopharynx—that is to say, the retro-pharyngeal adenitis and the otitis may be looked upon as independent of each other, save in the sense that they both arise from one common cause. Nevertheless, it is, on the other hand, highly probable that the infection of the pharyngeal gland is sometimes transmitted to it from the middle-ear cavities, or at least from the Eustachian tube, since, as Golgi's researches and the clinical course of cancerous growths in the middle-ear alike show, there is lymphatic connection between the middle-ear and the lymph nodes in the pharynx. But pharyngeal abscess of this kind, if due to infection from the middle-ear, is a metastatic infection.

There are few conditions more difficult to recognize, in their early stages, or more bewildering when seen in their full development. In the long experience of many busy physicians, none have been observed, others have recognized only a few, while many, perhaps, have gone their way unrecognized.

The subject of retro-pharyngeal abscess is one of more than ordinary interest to the laryngologist, for the reason that it may be, and is, often overlooked by the busy general practitioner, on account of the rarity of the disease and the lack of expertness in examining the throats of infants and young children. The specialist is usually called in at a time when the case has become serious and something must be done, it being a disease of fatal tendency, manifesting a variety of clinical aspects, involving, as it does, the adeno-lymph structures of the oro and the laryngo-pharynx. As these structures mature early in infancy and childhood, it is then when they are most likely to become infected and break down, forming a retro-pharyngeal abscess.

Should the surgeon be dealing with a peri-tonsillar abscess in the course of a suppuration of the middle-ear, particularly if the latter is acute, he should make a careful investigation of the case in order to exclude any connection with the middle-ear disease. All surgeons should be on the guard when dealing with a chronic suppuration of the tympanic cavity, as we may at any time be dealing with a caries of the antero-inferior wall, or else caries of the carotid canal, which would lead to a retro-pharyngeal abscess, and, should it go untreated, there is risk of a deep cervical formation, finding its

way into the thorax and causing death from mediastinitis and general sepsis.

In the course of an acute suppuration, of an acute exacerbation of a chronic suppuration of the tympanic cavity, especially if there has been some delay in opening and draining the mastoid, the signs and symptoms appear of cervical cellulitis in the upper region of the posterior triangle. There is pain, especially on moving the head; torticollis is usually very evident. In the early stages, swelling, with edema, and tenderness on deep pressure over the neck close to the skull appear, and the whole area manifests a tough induration. These inflammatory phenomena tend to spread down the neck, and in some cases have reached as far as the clavicle before the pus close to the skull had got to the surface. Along with the local phenomena we find the usual signs of severe toxemia; this, of course, would lead to surgical interference, incision being made in the upper part of the neck and deepened until pus appears. Should the case be complicated with mastoiditis, a mastoidectomy is done.

The development of a retro-pharyngeal abscess occupies a period of several days, so that, when we see the patient, the swelling has probably gone beyond the original point of infection; sometimes the pus may gravitate so low down that it is not seen through the fauces, and digital exploration alone can locate it. One of the first clinical signs is dysphagia. This varies from difficult deglutition to absolute inability to nourish, being especially marked in infants. Another important sign is respiratory distress, anxious expression, with chin extended, and croupy cough, mouth containing large amount of secretion and resembling that of peri-tonsillar abscess. Dyspnea increases as the pus extends downwards, interfering with respiration. This picture at first glance reminds one of a laryngeal diphtheria. Digital examination will clear up this point and reveal a large, fluctuating tumor. The temperature chart shows one of sepsis, and great depression, almost bordering on extremis, and here we have the unmistakable picture of retro-pharyngeal abscess.

*Differential Diagnosis.*—Laryngeal diphtheria, laryngitis, aneurism, gumma, malformation or malposition of the cervical vertebra. Digital exploration will clear up any doubt in the surgeon's mind.

*Prognosis.*—This depends on the etiology. If, as in some cases, the infection has extended from the middle-ear, with necrosis of the

temporal bone and extensive cellulitis and burrowing of pus in the neck, the results are not as favorable as when the purulent foci are limited to the pharyngeal structures, and evacuation is accomplished before spontaneous rupture, with the possibility of aspiration pneumonia, or asphyxia. A fair mortality rate is 5 to 7 per cent. The author knows no special treatment that will influence these glands. In acute retro-pharyngeal abscess formation no life need be sacrificed. Surgical interference, when done early, usually brings about a speedy recovery. If this aid is delayed, the condition, especially in infants, may end fatally. Pus may burrow its way toward the larger vessels of the neck, or travel along the esophagus to the mediastinum, and cause death.

*Surgical Treatment and Technic.*—Since most of our cases are in infants and early childhood, we are able to dispense with a general anesthetic. Simply envelop the patient in a sheet, lower the head of the operating table, introduce mouth gag, which sometimes causes the patient to become cyanosed and interferes with respiration. Should this occur, it is an indication for immediate removal of the gag, as the back part of the tongue is being crowded upon the abscess, thereby shutting off the air supply. A broad-bladed tongue-depressor is introduced and the operator proceeds, using finger as a guide. The incision is usually from below upwards. A closed scissors is next introduced into the wound and withdrawn open, in order to insure large opening for thorough drainage, the suction being used to control pus and blood.

The finger may be used to good advantage in order to express the pus from the abscess cavity. The patient should be immediately put to bed and remain in recumbent position for more than twenty-four hours and fed liquids, and all other post-operative attention given.

In retro-pharyngeal abscesses of older children and adults, it may be necessary to apply cocain, ethyl chlorid or bromid, or even a general anesthetic, in order to incise the abscess. Some authors advise the use of an aspirating syringe, while others use trochar, blunt director, scissors, etc.

#### REPORT OF CASE.

Baby girl, 21 months of age. Previous history good. Younger brother died two weeks ago from faucial diphtheria. Mother brought patient to clinic, saying the infant had been under treatment for fever for the past three weeks by three different physicians, without result. When the

writer first saw patient she was in *extremis*. Temperature, 103° F.; pulse, 130. The child was very anemic; anxious expression, torticollis, extended jaw, always crying, large quantity of mucus, and, on digital examination, a large, fluctuating tumor was felt, which caused my patient to become cyanosed, seized with a fit of coughing and dyspnea, which was not encouraging. The infant was wrapped in sterile sheet, without anesthetic; mouth-gag introduced; finger used to guide my knife, and abscess opened from below upward, and scissors introduced, closed, and withdrawn open, in order to assure thorough drainage; suction was used to take care of large amount of pus; very small amount of blood seen. After abscess was opened, heart and respiration ceased.

Operation was done in recumbent position, no cyanosis being present at any time during operation, and the small amount of blood present forces the author to believe the cause of death was due to sudden relief of pressure on pneumogastric, which produced, for the moment, some temporary paralysis or disturbance in function. Sometimes a sudden cessation of pressure may produce some such effect on the respiratory center.

Before closing, permit me to offer my sincere thanks to my friend, Dr. E. S. Keitz.

#### DISCUSSION OF DR. BOEBINGER'S PAPER.

**Dr. E. S. Keitz:** In the first place, I think Dr. Boebinger ought to be commended for the frank statement of his non-success, which is only natural. I assisted Dr. Boebinger in the operation, and when he decided to write the paper, what he intended to point out was that there was some anatomical condition connected with the retro-pharyngeal abscess which caused this mortality. We find in the textbooks that they say you must prevent the aspiration of the fluid into the lungs, but they seem to pass over the danger. But, in going through the literature, we found that a number of cases have occurred, as in Dr. Boebinger's case, immediately after the knife entered the abscess, the patient died suddenly. One case I remember in a child was exactly as Dr. Boebinger's paper stated. The abscess had been opened and the child died suddenly. Now, in one of the medical science monthlies, edited by Wood, there is another case, in which the author gives no reference, but says the patient died suddenly, and said death was presumably due to reflex symptoms. This, to my mind, means nothing; it seems to be simply a verbal camouflage and means nothing. The question is, is it due to the presence of vital structures around the retro-pharyngeal abscess, which is the danger point. We find in peri-tonsillar abscess just as much toxemia as we do in retro-pharyngeal abscess. In this case no anesthetic was given, and it could not be blamed. The patient was perfectly well in the morning. The patient died after operation was over and abscess was opened and mouth-gag removed. There was nothing we could do to bring her to life. It was so sudden—more sudden than anything I have ever seen. I am not a sufficient anatomist to say what has caused it, but I believe it is due to some injury or removal of pressure on the pneumogastric nerve.

**Dr. Wolf:** Dr. Boebinger's remarks have brought a suggestion to my mind. Dr. Holt opens the abscess with the finger nail, which he says he has done in several cases. Further, he protects the end of the scalpel with a piece of adhesive plaster, that will prevent the knife from extend-

ing more than a quarter of an inch. He insists upon opening these abscesses.

**Dr. Homer Dupuy:** I have reported before this Society four cases of retro-pharyngeal abscess. They were infants. No deaths occurred. I would emphasize that as there are two retro-pharyngeal spaces—one on each side of the median line of the posterior pharyngeal wall—the infection usually occurs in the lymphatic glands of one of these spaces. There is usually a swelling, more prominent on the side of the first infected space. The fibrous septum separating the right and left spaces is frequently broken down by the pus which invades the other space. While swelling appears in the median line of the pharynx, it is unquestionably more prominent on the first infected side. This greater prominence is the point of selection for incision. There is already too much dyspnea to justify a general anesthetic. If the incision does not prevent a re-accumulation, remember the pathology is broken-down lymphatic glands. Reopening the line of incision with Mayo scissors, and then **gentle** curettage is indicated. Differentiating this affection from primary laryngeal diphtheria, which it simulates, can be done through the voice, which, as a rule in diphtheria, is hoarse, or even reduced to aphonia. In the abscess, it is muffled, twangy, the “*voix de Canard*” described by the French. Of course, seeing and feeling the pharyngeal swelling gives infallible evidence. Dr. Boebinger’s handling of the case was the correct manner. The death was due to one of those unforeseeable and well-nigh unpreventable factors which often conspire against the surgeon and physician.

**Dr. F. R. Gomila:** If Drs. Boebinger and Keitz came to the conclusion that this child died from the sudden relief of pressure on the pneumogastric nerve, would they proceed in the same manner in future abscesses of this character or would they use other methods in getting the pus out? The suction apparatus that I have seen them use certainly will not get all of the pus that comes from the cavity, and could get into the lungs after the patient cried and took a deep inspiration.

**Dr. Boebinger** (closing discussion): I believe we reviewed the literature very thoroughly and carefully. The condition is essentially one of early childhood, but many authorities claim this condition is seen in adults and the young, as I stated in my paper. I mentioned especially the various ages at which this condition had been seen, especially to avoid criticism after reading the paper. In answer to my chief about not bringing out the differential points, I believe I stated that the voice plus exploration with the finger would clear up retro-pharyngeal abscess; and in answer to our little friend and co-worker, who asked would I, in my future cases, go back with the knife, I believe I would attempt to aspirate before draining the abscess. I do not mean to say that I would simply aspirate and stop there; I would relieve the tension by aspiration, and then I would go along, using my knife. I do not have to guard my knife—I have enough anatomical sense to know how to use my knife, knowing that the base is cartilaginous, and not osseous. Therefore, I would not have it misunderstood that I would aspirate and stop. On the contrary, this would necessitate going back daily and having my patient undergo the same operation.

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## NEWS AND COMMENT

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THE FORTHCOMING MEETING of the American Society of Tropical Medicine offers the following articles as a preliminary program:

Observations Upon the Age, Sex and Color Upon the Prevalence of Malaria, by Dr. C. C. Bass, New Orleans, President.

Pellagra (exact title to be announced later), by Dr. Jos. Goldberger, Surgeon, U. S. P. H. Service, Washington, D. C.

Tropical Resources and Hygiene, by Dr. D. Rivas, University of Pennsylvania, Philadelphia.

Certain Digestive Phenomena Observed in a Case of Sprue, by Dr. Frank Smithies, Chicago.

Observation Upon the Prevalence of Infection With Filaria in Certain Parts of the United States, by Dr. Edward Francis, U. S. P. H. Service, Washington, D. C.

The Use of Quinin in the Prophylaxis and Treatment of Infection With Proteosoma, by Dr. Eugene R. Whitmore, Army Medical School, Washington, D. C.

Experimental Typhoid Carriers, by Dr. K. F. Meyer, San Francisco.

Complement Fixation Test on Sprue, by Dr. Gonzales Martines, San Juan, Porto Rico.

AZALEA WAR HOSPITAL ENLARGES ITS SCOPE.—Azalea, or the United States Hospital No. 16, situated in the mountains of North Carolina, near Asheville, which was designed primarily for the care and treatment of tuberculous soldiers and sailors, has decided to admit gassed soldiers because the climatic conditions have proven to be advantageous in gas cases. The hospital was opened on August 20, with accommodations for 1,000 patients, and orders have been given to add twenty-two buildings, which will provide for an additional 500 patients. The cost to date is about \$1,500,000.

REGULATIONS ON THE USE OF PAPER.—The Paper Division of the War Industries Board recently secured data concerning newspapers and periodicals, especially relative to the amount of paper used, and certain definite regulations have been made by this board governing the use of paper, such as (1) against continuing subscriptions after date of expiration; (2) against the sending out of complimentary copies; (3) against sending more than one copy to

advertisers; (4) against sending sample copies to stimulate circulation or advertising, except under special permit; (5) against exchanging with other journals; (6) against selling at an exceptionally low or nominal subscription rate. Suggestions to publishers that they economize if possible "by cutting the number of pages, the curtailment of circulation, or in any other way publishers choose," has been made. Finally, each periodical is requested to reduce the total tonnage to what amounts to about 15 per cent.

ST. PATRICK'S SANITARIUM (Lake Charles, La.)—A thirty-five bed addition, to cost \$70,000, and nurses' training school in connection with the institution, will be the new features of the St. Patrick's Sanitarium of Lake Charles in the very near future. The training school for nurses has already opened, with a good attendance.

APPEAL FOR PLATINUM.—An appeal has been sent out to every one, including especially physicians and dentists, by the chief of the Section of Medical Industry of the War Industries Board, that, on account of the scarcity of platinum and the great need of the metal for war purposes, each should go over his instruments and pick out every scrap of platinum that is not absolutely essential for his work. The scraps may be sent to government sources either through accredited representatives of the Red Cross, who will make a canvass for the purpose of collecting the platinum, or through any bank under the supervision of the Federal Reserve Board. Current prices will be paid for the metal.

PASTEUR INSTITUTE CLOSES.—Dr. George Gibier Rambaud, head of the Pasteur Institute in New York City for the past eight years, has been ordered to France on active duty and has closed the institute. In closing the institute, Dr. Rambaud stated that it had served its purpose in introducing the Pasteur treatment, which is now available in all the larger hospitals. During the past eight years the institute has cared for 10,020 patients, 8,292 of whom were treated without charge.

NEED FOR GENERAL PRACTITIONERS IN THE ARMY.—The *Journal of the American Medical Association*, in order to correct an impression which has arisen in the minds of some that the specialist, and not the general practitioner, is needed in the army, makes the following statement: "There is need in the Medical Department for every physician who can qualify physically, morally and pro-

fessionally. In many departments of the service the general practitioner is a better man for the work than the specialist.

PERSONALS.—Capt. C. Jeff Miller, M. C. (New Orleans), has been promoted to the rank of major.

Dr. Jerome E. Landry is the new house surgeon at the Charity Hospital, New Orleans, succeeding Dr. Hiram W. Kostmayer, who resigned to accept a position with the Illinois Central Hospital of New Orleans.

Among the doctors of New Orleans who have returned from their vacations and resumed practice are: Drs. Sidney K. Simon, G. F. Cocker, Randolph Lyons, Wm. H. Harris, A. Henriques, A. G. Friedrichs and G. K. Logan.

REMOVALS.—Dr. R. S. Crichlow, from Lecompte, La., to 7037 Lowerline street, New Orleans.

Dr. A. Nelken, from 701 Perring Building to 503 Medical Building.

Drs. Joachim and O'Kelly, from 501 to 616 Macheca Building.

Dr. W. H. Block, from 1221 to 710 Maison Blanche Building.

Dr. H. B. Seebold, from 622 to 420 Macheca Building.

Dr. A. S. Yenni, from 913 to 726 Maison Blanche Building.

Dr. Luther Sexton, from 508 to 407 Medical Building.

Dr. O. C. Cassegrain, from 416 Medical Building to 1105 Maison Blanche Building.

Dr. C. V. Unsworth, from 602 Perrin Building to 212 Medical Building.

Dr. L. J. Dubos, from 416 Medical Building to 1202 Maison Blanche Building.

Dr. J. W. A. Smith, from 107 Camp street to 700 Perrin Building.

Dr. R. E. Stone, from 107 Camp street to 700 Perrin Building.

MARRIED.—On October 5, 1918, Dr. Lucien A. LeDoux, first lieutenant, U. S. A., to Miss Rosina Simino, of Lafayette, La.

DIED.—On September 23, 1918, Dr. John Laurans, prominent physician of this city, aged 55 years.

**MORTUARY REPORT OF NEW ORLEANS.**

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for September, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever	3	1	4
Intermittent Fever (Malarial Cachexia)	1	1	2
Smallpox			
Measles	4		4
Scarlet Fever			
Whooping Cough	5	2	7
Diphtheria and Croup			
Influenza	3		3
Cholera Nostras			
Pyemia and Septicemia		1	1
Tuberculosis	42	27	69
Cancer	24	11	35
Rheumatism and Gout	1		1
Diabetes	3		3
Alcoholism	1		1
Encephalitis and Meningitis	1	1	2
Locomotor Ataxia	1		1
Congestion, Hemorrhage and Softening of Brain	27	8	35
Paralysis	5		5
Convulsions of Infancy			
Other Diseases of Infancy	11	9	20
Tetanus			
Other Nervous Diseases	4		4
Heart Diseases	36	31	67
Bronchitis	1	2	3
Pneumonia and Broncho-Pneumonia	9	12	21
Other Respiratory Diseases		2	2
Ulcer of Stomach		2	2
Other Diseases of the Stomach		2	2
Diarrhea, Dysentery and Enteritis	16	13	29
Hernia, Intestinal Obstruction	2	2	4
Cirrhosis of Liver	7	4	11
Other Diseases of the Liver	3		3
Simple Peritonitis			
Appendicitis	5	2	7
Bright's Disease	18	9	27
Other Genito-Urinary Diseases	16	10	26
Puerperal Diseases	4	4	8
Senile Debility	4		4
Suicide	4		4
Injuries	24	18	42
All Other Causes	27	23	50
<b>TOTAL</b>	<b>312</b>	<b>197</b>	<b>509</b>

Still-born Children—White, 20; colored, 26; total, 46.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death rate per 1000 per annum for Month—White, 13.37; colored, 22.73; total, 15.91. Non-residents excluded, 13.62.

**METEOROLOGIC SUMMARY (U. S. Weather Bureau).**

Mean atmospheric pressure ..... 30.00  
Mean temperature ..... 77.00  
Total precipitation ..... 4.82 inches  
Prevailing direction of wind, ..... northeast

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## NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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### EDITORIAL

#### PEACE.

The shock of the greatest cataclysm since the flood—engulfing millions as a sacrifice in the struggle for righteousness—has passed. The wrecks from its potency are strewn among most of peoples of the earth, and the unrest in the reaction will disturb the human race for a generation to come.

The nightmare of the past four years has not only touched the money balance of the world, but it has stricken the souls of men and women in a thrill of horror which will leave its nervous impress until the adjustment is complete.

The contempt of most nations has been drawn upon a people formerly respected for its domestic virtues, which have been sacrificed upon the altar of sordid gain. Human lives have been blown away like chaff before a sultry blast, and the trail of great disasters still marks the scenes of the momentous struggle.

The world, in a period of luxurious ease, has been sternly brought to the realization of the vanity of life and to the nearness of death. War and disease have stalked the earth, and famine has already raised its dreadful head in the wake of its two doleful sisters. The Malthusian triad is establishing its philosophy and the best of mankind has been destroyed in the crucible of time.

Amid the sorrowings of multitudes of mothers there is the glory of valorous deeds, of proud heroes who have sanctified their transit by achievements which have not yet been wholly written.

To those who have been lookers-on, gleaning the news of those who have carried on, there must be large sense of pride and some contentment that the might of right has won.

Peace and rest from the turmoil of battle are in sight, and the soldiery of the world will soon return to civil and pastoral lives, welcoming with time the memories of the great battles they have endured to establish a true brotherhood of man.

From the very beginning, the traditions of the medical profession have been maintained. The work has been well done and it has merited the fullest praise, which has been awarded.

In the aftermath of war the work of the doctor is as great as in the time of struggle itself—and to him comes the duty of bringing out of the wreckage useful men and women. The psychology of the world must be studied and its conditions trained to a sane future, and this must be the every-day task of the doctor—of those who have been in the midst of action and of those who had to stay at home.

The problems will be many, and there must be an organized profession ready to engage them. The government has anticipated the need of care for returning soldiers who have suffered injury, and throughout the country there will be homes and hospitals. But there will be need beyond this for the physical well-being of those who do not fall under such provision and for the families of those who do not return.

For years to come the sobs of those who mourn will rise to meet the choruses in that great company which has gone on before, and

in the requiem sounded by the rolling drums solace will come to the sorrowful.

In the gloom of the ending year the break of dawn of a new era is at hand, and with a hope born of mingling grief and glory we may earnestly pray for

*Peace on earth, good will to men.*

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## END OF INFLUENZA.

The epidemic of influenza in this section is over. While we have all felt the weight of disability and suffering it has caused, and the heavy toll of lives it has claimed, it is too early, here or elsewhere, to reach definite conclusions regarding many of the scientific and practical problems connected therewith.

The disease has varied somewhat in intensity and other characteristics in different countries and various parts of countries, yet it preserved its many features and behaved more or less like the other great pandemics which have invaded the world from time almost immemorial.

Perhaps the main thing we have learned is that there is a great deal we still do not know about it, whether we consider it from the clinical, the bacteriological, or the prophylactic side.

No doubt valuable data have been gathered universally, and a proper classification and study thereof will throw a flood of light on the subject. For the present, however, it is not demonstrated even which is really the causative agent and its method of propagation.

One thing is evident: when the disease has spent its force in a community it does not seem to become recrudescent when the means advised for its control are ignored. Witness that grandest day in history, November 11, 1918. The bars had not been dropped here in New Orleans and the disease was only on the wane and, notwithstanding the greatest aggregation and congregation of people on Canal street and public places, influenza has continued to be on the wane ever since. If there can be a recrudescence later on it will be from some other cause.

This is not an implied criticism against sanitary and preventive measures, but as evidence of the fact stated above, that we do not "know it all," even including the effects of prophylactic vaccine.

## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### SOME STUDIES ON THE RESISTANCE OF THE OVA OF *TOXASCARIS LIMBATA*.\*

By MEYER WIGDOR, A. M.,

Research Laboratory, Parke, Davis & Co., Detroit, Mich.

The resistance of ascarid eggs to various chemical agents and to varying conditions of the temperature, oxygen, and moisture has been known. Baillet (1866), referring to the resistance of ascarids, says that the shell of the egg "is so impermeable and resisting that it can only be affected by very energetic chemical agents, and in the majority of cases this shell is sufficient to protect the contents of the egg against everything that in ordinary circumstances might alter them." Verloren kept for more than a year ova of *Ascaris marginata* in which the embryos—formed from the fifteenth day—remained alive, although they had been exposed to all the variations of temperature during summer and winter. Braun (1906), in regard to *Ascaris canis*, states:

"The eggs, in spite of the delicacy of their shells, have great powers of resistance, and develop equally well in water and damp earth, in a solution of chromic acid, alcohol, turpentine, solution of soda, etc. It is, however, but seldom that the embryos hatch out."

Foster (1916), referring to the resistance of ascarid eggs, states:

"It is a well-known fact that, in the case of several species of parasites, the ova of which are characterized by a relatively thick egg shell, the eggs are affected but little, if at all, by formalin solutions. Ascarid eggs, for example, may be kept alive for months, or even years, in formalin."

Morris, when examining some human feces which contained many eggs of *Ascaris lumbricoides*, and which had been preserved in a 2 per cent solution of formalin for two years, found that some of the eggs contained actively motile embryos. Four months later there was an apparent increase in the number of eggs containing embryos. In my own experience, it has been found that a formalin

solution is a very satisfactory medium in which to incubate ascarid eggs, as it prevents the growth of moulds, bacteria, etc., without interfering with the development of the embryos. Various other substances commonly destructive to protoplasm have been found not to interfere with the development of ascarid eggs. Leuckart notes that the eggs of *Ascaris mystax* may reach development in alcohol, chromic acid and turpentine; while Bataillon has had the ova of *Ascaris megaloccephala* showing living embryos after having been for six months in Fleming's solution. The latter also finds that the embryos in the eggs remain intact and active in 50 per cent alcohol, in a  $33\frac{1}{3}$  per cent solution of acetic acid, and in a 20 per cent sulphuric acid solution.

While the resistance of ascarid eggs is fairly well known in a general way, much work remains to be done in ascertaining substances which will destroy these and other helminth eggs. Since prophylaxis against parasitic infestation is largely a matter of proper disposal of manure or feces, a knowledge of suitable chemical agents for the destruction of the ova present in feces or manure is evidently desirable. It is known that, when live stock are pastured in the same field year after year, the animals often become unthrifty and occasionally sicken and die, due to the animals being continually in contact with soil polluted by parasitic ova and bacteria from manure. Just as there is an imminent danger of unthriftiness amongst animals in contact with polluted soil, similarly human health may be affected. Parasites of the intestine, lungs, liver, kidneys and bladder are usually spread by soil pollution. Whether these parasites have a simple life history without an intermediate host, or have an intermediate host, whether they spread from one person to another, from one of the lower animals to another, or infect one group after passage from another, the fact that the eggs are located in the feces for a time, and that here is an excellent opportunity to apply control measures, makes the study of means of attack against parasitic eggs an important and reliable investigation.

Just as various bacteria seem to show specific differences in their behavior toward certain chemicals, so may we expect the same to be true in regard to the ova of parasites, and hence the need for further studies along these as yet almost untouched lines of investigation.

To prevent the evil effects of soil pollution from extending to his

live stock, the farmer resorts to such measures as the purchase of additional pasture lands, pasture rotation, burning over of the pasture, etc. Human beings, on the other hand, are taught to frequent an appointed place to deposit excreta, which is then variously disposed of.

Several measures have been advocated for the treatment and disposal of manure and excreta, to kill parasitic ova, the commonest of which are:

1. *Heating.* Stiles and Lumsden claim that heating the effluent in a vessel at  $212^{\circ}$  F. is the only measure which can be unreservedly recommended to date. We would naturally expect that very high temperatures would prove lethal to parasitic ova due to the coagulation of the protoplasm. The disagreeableness of this procedure, however, is very evident, and is so considerable as to make this method impracticable.

2. *Burial.* Stiles and Lumsden state, concerning the method of disposal: "Burial will unquestionably decrease the danger of spreading infection, but in the present state of knowledge this method of disposal cannot be relied upon as safe." One danger involved is the probable contamination of water supplies.

3. *Chemical disinfection.* As has been previously stated, the chemical disinfection of polluted soil against parasitic worm eggs has received very little attention, although it appears to be a very feasible method of combating parasitic infection. Chemical disinfectants, such as chlorinated lime and certain coal-tar derivatives, have long been advocated to destroy parasitic bacteria in polluted soil, and there is no apparent reason why this method should not prove equally efficacious against eggs, if suitable substances can be found. There are certain factors to be taken into consideration, however, in chemical disinfection against eggs. Parasitic ova usually possess a strong chitinous outer membrane, which is lacking in bacteria, and which makes the egg very resistant to the penetration of most chemical agents. The usual germicidal strengths advocated to destroy bacteria prove surprisingly inadequate in destroying parasitic ova.

Another important factor to be considered in this connection is the effect of the chemical agent on the fertilizer value of feces. In many countries, as in China, where every bit of excreta is religiously kept and used, the effect that various chemicals would have on human feces in modifying its value as fertilizer is of prime im-

portance. Another important factor already noted is that some parasitic ova are more resistant than others, and that the ova of different species may behave differently under the influence of various chemicals.

This paper is intended primarily to present a brief study of the effect of some chemical agents on the ova of one of the dog ascarids, *Toxascaris limbata*. The egg of this species was used because infested fecal material was readily available and because it seems quite resistant to chemical agents. The ova of *T. limbata* possess an outer, clear, double-contoured, chitinous shell and an inner yellowish membrane, which is marked with interlacing striations, giving the suggestion that this membrane is composed of interlaced fibers. The following procedure was usually employed in testing the various chemicals under consideration: The feces were collected, thoroughly broken up in a shaker and screened, a method advocated by Hall (1917) for examining feces. To most of the solutions, where it was feasible, a weak solution of approximately 5 per cent potassium dichromate was added to hasten embryo development. Hall and Wigdor (1918) have found a 10 per cent potassium dichromate solution a very satisfactory medium for culturing coccidia and various helminth ova, presumably by furnishing oxygen and hindering bacterial growth. Since in these tests the chemical agent was not applied to the feces direct, as under natural conditions, the results may differ somewhat from what may be actually found to take place if the feces were treated direct, without going through the screening process. Eggs that have been screened, however, should be more readily accessible to the chemical agent tested than those intact in the feces, for the latter have a coating of fecal matter protecting them to some extent against the agent employed, which protection is not afforded the screened eggs. The latter are mixed with, but not coated by, the fine particles of fecal matter which pass through the screen with the eggs. Since the tests were made on a parasite of the dog, the findings can only be applied to human parasites within certain limits and with some reservation, but that they will apply in large measure seems entirely reasonable and probable.

The chemical agents tested include the following groups of chemicals: (1) Acids, including hydrochloric, nitric, sulphuric, oxalic and acetic acids, and the alkalis, including caustic soda, ammonia and lime. (2) Metallic and other salts, including corrosive sub-

limate, copper sulphate, iron sulphate, potassium dichromate, potassium arsenite, sodium chloride and sodium fluoride. (3) Phenols, including pure carbolic acid, and kreso,\* kreso dip,\* septic,\* cresylone\* and neko,\* preparations whose germicidal value depends on the higher phenol. (4) Alcohol. (5) Formaldehyde. (6) Volatile oils and other readily volatile agents, including chloroform, ether, oil of turpentine, oil of chenopodium, toluol and xylol. (7) Miscellaneous agents, including hydrogen peroxide and germ-X.†

Additional tests were made to determine the rate of development, if any, of screened feces in distilled water, of screened and unscreened feces in tap-water, and of screened and unscreened feces in tap-water to which some 5 per cent potassium dichromate was added. Tests were also made on the effect of temperature and of moisture on egg development.

The number of chemical disinfectants is large, and nearly every group of chemical substances includes members that may be capable of injuring parasitic ova. In practice, however, only a relatively small number of chemicals come under consideration, it being necessary to exclude all that act only in a high state of concentration, as well as those which unduly corrode containers to be disinfected or which are too expensive.

The number of chemical disinfectants that might be employed in attempting to destroy parasitic ova has by no means been exhausted in these studies, but some of the most important members of each group have been tested and will be given *seriatim*.

#### ACIDS AND ALKALIS.

Since the development of ova is dependent on certain chemical reactions, varying between somewhat narrow limits, all strong acids and alkalis adversely affect the vital processes. Certain acids, such as hydrochloric acid, also sulphuric and nitric acids, have long been known to kill all germs in a very short time, while the antiseptic value of other acids, such as acetic, is only slight. Their highly destructive action on most objects, however, stands in the way of their employment in practice, and consequently the cheapest of the

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\*These phenol preparations are marketed by Parke, Davis & Co. under these trade names, and will hereafter be referred to as Preparations *A* (Kreso), *B* (Kreso Dip), *C* (Septico), *D* (Cresylone), and *E* (Neko).

†Germ-X, a hypochlorite, will be termed Preparation "X," and is marketed by the North Star Chemical Works, of Lawrence, Mass. Similar products on the market are Bacilli Kill and Fecto.

strong acids—hydrochloric acid and sulphuric acid—are rarely used.

Regarding the resistance of parasitic ova to various acids, there is very little available data. Wharton (1915) found that eggs of *Ascaris lumbricoides* died in one-half per cent hydrochloric and 3 per cent acetic, and divided overnight in 3 per cent nitric. Bataillon (1901), as cited by Foster (1916), found, on the other hand, that the embryos in the eggs of *Ascaris megalcephala* remained intact and active in a  $33\frac{1}{3}$  per cent solution of acetic acid and in a 20 per cent solution of sulphuric acid.

Hydrochloric, sulphuric, nitric, oxalic and acetic acids were the acids used in these tests, with the following results:

At the end of three days, eggs kept in a 5 per cent hydrochloric acid solution showed motile embryos. Those in a 10 per cent solution, for the same period of time, showed embryo development, but the embryos were apparently immotile.

Eggs kept in a 5 per cent sulphuric acid solution showed some actively motile embryos at the end of a period of three days. Most of the eggs, however, were still segmenting and dividing, and were all in apparently good condition. Eggs kept in a 10 per cent sulphuric acid solution for three days showed embryo development in some cases, but the embryos were apparently immotile.

Eggs kept in a 5 per cent solution of nitric acid showed some actively motile embryos at the end of a three-day period. About 50 per cent of the eggs were, however, killed and shrunken to a little less than one-half their normal size. The other 50 per cent were in good condition and were undergoing development.

Eggs kept in a 20, 30, 40 and 50 per cent solution of oxalic acid showed actively motile embryos in three days.

Eggs kept in 5, 10 and 20 per cent solutions of acetic acid for three days showed actively motile embryos at the end of that period. Eggs kept in a 30 per cent solution for the same period were killed, and had not undergone any marked development.

Thus, amongst the acids, nitric acid appears to be the strongest in its ovacidal action against the eggs of *Toxascaris limbata*, sulphuric and hydrochloric of approximately equal ovacidal strength ranking next, acetic next, and oxalic last.

The action of alkalis is, broadly speaking, less powerful than that of the acids. Caustic soda is held to be the strongest of these agents. In actual practice, the strong alkalis will only occasionally come into consideration for use as disinfectants, since they corrode

most articles that require treatment. An exception is, however, afforded in the case of slaked lime, which is extensively used in practical disinfection. The treatment of manure with slaked lime has been perhaps the most widely advocated measure for combating parasitic infection.

To determine the efficacy of this treatment in destroying the ova of *T. limbata*, the following tests were made:

Five grams of feces were placed in a petri dish and 0.45 gram of slaked lime sprinkled thereon. Ten days later embryos were found to have developed, but they were apparently immotile.

Eggs were placed in a one-fifteenth solution (1 gm. of the lime to 15 gms. of water) of slaked lime; embryo development was noted three days later.

Thus it appears that the treatment of the feces with the ordinary commercial slaked lime does not hinder the development of the ova of *T. limbata*. In this connection it must be taken into consideration that slaked lime, to be at all effective, should be freshly slaked, for, on being exposed to the air, it is readily converted into the carbonate form, which is devoid of antiseptic properties. Commercial preparations of slaked lime are very often not fresh-slaked lime, but are the carbonate, and hence of no value for disinfection.

Embryo development was also obtained in three days in eggs kept in a one-fifteenth solution of chlorinated lime.

The action of caustic soda on the ova of *T. limbata* is of special interest, however. Eggs were cultured in 1, 2, 5, 10 and 50 per cent solutions of caustic soda, and motile embryos were obtained in each case at the end of a three-day period. Some of the eggs in the 10 and 50 per cent solutions were, however, undergoing decomposition. In a 25 per cent solution all the eggs were killed and showed degeneration. The resistance of the ova to caustic soda is surprising, in view of the latter's well-known disintegrating action on chitin. In 50 per cent strengths a protective coat appears to be cast about the egg, making it impermeable to the action of the alkali.

Ammonium hydroxide appears to be devoid of any action against the ova, since motile embryos were obtained at the end of a three-day period in 25 and 50 per cent solutions of the alkali.

From the above we can note that the ova of *T. limbata* show surprising resistance to the action of most of the common acids and alkalis.

## METALLIC SALTS AND OTHER SALTS.

The group of metallic salts is of considerable importance, and comprises some of the most powerful disinfectants against bacteria known.

Corrosive sublimate (mercury dichloride  $\text{Hg Cl}_2$ ) is known to destroy the vegetative forms of bacteria in a few minutes, even when diluted to 1 part in 10,000; and the spores of bacteria possessing medium powers of resistance, such as anthrax spores, are killed within two hours by a 1-1000 solution. However, like many other disinfectants, all metallic salts are influenced by other substances present in the solution, and also by the solvent, because their disinfectant power depends on their degree of electrolytic dissociation. For this reason they act much less powerfully in an alcoholic solution, and not at all in a fatty or oily medium. The dissociation may be also modified by additions of other agents.

Tests on various salts of this group gave the following results:

Eggs kept in a 1-500 solution of corrosive sublimate showed motile embryos at the end of a three-day period. Eggs kept in a 1-250 solution of the salt showed division at the end of three days, a high degree of segmentation at the end of five days and actively motile embryos at the end of fifteen days. Eggs in a 1-100 solution showed actively motile embryos in three days.

Eggs kept in a 20 per cent copper sulphate solution showed actively motile embryos at the end of three days.

Eggs kept in a 33 per cent solution of iron sulphate showed actively motile embryos at the end of three days.

Eggs kept in normal saline solution showed actively motile embryos at the end of three days.

Eggs kept in 1-2 solution of sodium fluoride, a salt which has recently been advocated as possessing valuable antiseptic properties, showed actively motile embryos at the end of three days.

Eggs kept in a 1 per cent solution of potassium arsenite showed actively motile embryos at the end of three days, but they were apparently dead when examined two days later. Eggs kept in a 10 per cent solution of potassium arsenite showed some actively motile embryos at the end of three days. Some of the embryos were apparently immotile, and some of the eggs had apparently undergone very little development, for the nuclear material in the eggs was distorted and was breaking down.

In this connection it may be stated that a 10 per cent potassium dichromate solution has proven a very valuable medium for developing not only the eggs of *Toxascaris limbata*, but also the eggs of *Ancylostomum canium*, *Trichuris depressiuscula* and the oocysts of *Diplospora bigemina*.

The ova of *T. limbata* are, therefore, highly resistant to the action of most metallic salts, which have been known to possess bactericidal properties.

#### PHENOLS.

This generic term includes all the chemicals allied to true phenol (carbolic acid), which form a very important group of disinfectants.

Carbolic acid is soluble to the extent of 5-6 per cent in water, and when employed for disinfection purposes is usually replaced by its homologues, the cresols and their compounds, which are cheaper and less corrosive. The three cresols, meta-, para- and orthocresol, are in themselves sparingly soluble (0.5, 1.8 and 2.5 per cent, respectively) to exert any powerful disinfectant action, but their solubility can be largely increased by the addition of strong acids or of alkaline soaps, which raise them to the category of the strongest disinfectants. The greatest popularity is enjoyed by the cresols which have been dissociated by means of soap solutions, and which fall into two categories, one class forming clear solutions in water and the other an emulsion in water. Of the latter, preparations *A*,\* *B*\* and *E*,\* and of the former, preparations *C*\* and *D*\* are representatives which have been tested. Preparation *B*, with a phenol coefficient of 5, consists of 78 per cent creosote oil and 23 per cent resin soap, with enough water added to keep it in solution. Preparation *A*, with a phenol coefficient of 6 or 7, consists of 70 per cent creosote oil enriched with extra phenols and 30 per cent soap solution. Preparation *D*, with a phenol coefficient of 2, consists of a 50 per cent solution of cresylic acid in soap and water. Preparation *E*, with a phenol coefficient of 16 to 20, consists of 78 per cent high coefficient oil, which has a higher percentage (about 90 per cent) and higher quality of phenols than the ordinary coke-oven tar phenols. Preparation *C*, with a phenol coefficient of 2, is almost identical with preparation *D*, differing in that it contains about 10 per cent of oils (eucalyptus, camphor and turpentine oils) to give it a pleasant odor.

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\*Preparations *A*, *B*, *C*, *D* and *E* are Kreso, Kreso Dip, Septico, Cresylone and Neko, respectively.

The following results were obtained on the resistance of the ova of *T. limbata* to phenol and its derivatives. Tests on pure carbolic acid were made as follows:

Eggs placed in pure carbolic, full strength, were killed at the end of three days. The eggs were greatly distorted and had shrunk to about one-half their normal size. The shells were split at several points and the eggs were undergoing degeneration.

Eggs in 20 per cent and 5 per cent carbolic were found dead at the end of a three-day period. The eggs were deformed.

Eggs in a 2 per cent carbolic acid solution showed no development at the end of a three-day period, but the eggs were fairly well preserved.

Eggs in a 1 per cent carbolic acid solution showed division and segmentation at the end of three days, and at the end of five days no further development was noted, the eggs being apparently killed.

Tests on preparation *B* were made as follows:

Eggs kept in 1-500 solution showed actively motile embryos in three days.

Eggs kept in 1-250 solution showed motile embryos in three days, but most of the eggs had not yet developed to form embryos, being still in the division stage. On the twelfth day after culturing the embryos were found dead and undergoing degeneration.

Eggs in a 1-50 and 1-100 solution, at the end of three days were, in nearly all cases, undergoing complete degeneration, the chitinous outer membrane and nuclear material being almost entirely destroyed. Some eggs had undergone embryo development, but had been killed and were breaking down.

The advocated disinfectant strength of preparation *B* is 1 part of the preparation to 100 parts of the water, a strength which proved entirely efficacious in destroying the ova of *T. limbata*.

Tests on preparation *A* were made as follows:

Eggs kept in a 1-250 solution showed embryo development at the end of three days, but the embryos were apparently dead and the nuclear material was breaking down.

Eggs kept in a 1-100 solution showed division, segmentation and some embryo development at the end of three days. At the end of five days the eggs were dead and the nuclear material was decomposing.

Eggs kept in a 1-50 solution were nearly all dead at the end of

three days; some of the eggs were highly segmented, but apparently dead.

The advocated disinfectant strength of preparation *A* is 1-100.

Tests on preparation *D* were made as follows:

Eggs kept in a 1-250 solution for three days showed motile embryos at the end of that period.

Eggs kept in a 1-100 solution showed slow development at the end of a four-day period. The eggs were segmented in most cases and the young embryos were just ready to appear.

Eggs kept in a 1-50 solution for four days showed no noticeable development at the end of that period, all the eggs being apparently dead.

The advocated disinfectant strength of preparation *D* is a 1 or 2 per cent solution. In these tests a 2 per cent strength seems to be effective against the ova of *T. limbata*.

Tests on preparation *C* were made as follows:

Eggs kept in a 1-75 solution showed embryo development at the end of a three-day period.

Eggs kept in a 1-50 solution showed little development at the end of a three-day period, although they were all apparently in good condition, some showing the beginning of segmentation.

Eggs kept in a 1-25 solution were killed at the end of a three-day period and were breaking down.

Preparation *C* is advocated in strengths of 1-75 for spraying barns, stables, etc., and in a solution of 2 per cent strength for sterilizing wounds. These tests have shown that a 1-50 solution will apparently kill and a 1-25 solution will surely kill.

Tests were made on preparation *E* as follows:

Eggs kept in a 1-500 solution showed actively motile embryos at the end of three days.

Eggs kept in a 1-250 solution showed a few actively motile embryos at the end of a three-day period, but most of the eggs were apparently killed. At the end of four days the embryos were apparently dead.

Eggs kept in a 1-100 solution showed very little development and were apparently dead after a period of three days.

The dilution of preparation *E* recommended for general use is 1-500. The tests on the ova of *T. limbata* proved this strength to

be inadequate for inhibiting embryo development. A 1-250 or, still better, a 1-100 solution, is advisable.

The above data on the action of the phenols shows that there is a direct relationship between the corrosiveness of the phenol used and its ovocidal action against the ova of *T. limbata*. Pure phenol, highly corrosive, kills the eggs in a 1 per cent solution; preparations *C* and *D*, the next most highly corrosive substances used, kill in solutions which are equivalent to a 4 per cent solution of phenol; preparations *A* and *B*, ranking next in their corrosive action, kill in a solution which is equivalent to a 7 per cent solution of phenol; and preparation *E*, the least corrosive and hence least efficacious against the ova tested, kills in solutions which are equivalent to a 10 to 20 per cent solution of phenol.

This group offers the most promising possibilities for destroying parasitic ova. Strong solutions of such phenols as preparations *A*, *B*, *C* and *D* should prove highly effective in killing worm ova.

#### ALCOHOL.

The alcohols are still the subject of scientific discussion, in so far as their disinfectant properties are concerned. That they are endowed with a by no means small power of disinfection is indubitable, but the scientific experiments performed in this connection have furnished widely different results in detail. On the whole, it has been ascertained by careful research that solutions above 20 per cent in strength kill all vegetative forms of moist and dried bacteria, and that this action increases in power up to solutions of 80 per cent strength, beyond which limit it declines in the case of dried bacteria, but persists through the higher strengths (85, 90) in the case of moist bacteria. In my tests, actively motile embryos were present in the eggs after a three-day period in solutions of 10, 25, 50, 60 and 70 per cent strengths of ethyl alcohol, but were killed in 75 per cent and higher strengths, thus agreeing with the results obtained for the action of ethyl alcohol on moist bacteria. The eggs in the latter solutions had apparently lost their inner coat or it had been rendered homogeneous and invisible.

It is interesting to note that Bataillon, as previously mentioned (1901), found that the embryos in the eggs of *Ascaris megalocephala* remained intact and active in 50 per cent alcohol.

The ova of *T. limbata* are, therefore, very highly resistant to the action of alcohol.

## FORMALDEHYDE.

The chief action of formaldehyde for bacterial disinfection is to restrict the growth of bacteria, which are prevented from germinating by solutions as weak as 1:20,000. In its ovocidal action against the eggs of *T. limbata*, formaldehyde is practically negligible. In this series of experiments eggs were cultured in 1, 5, 10, 20, 25, 30 and 35 per cent solutions of formaldehyde, and at the end of three days motile embryos were noted in every case. Eggs cultured in commercial formaldehyde (an approximate 40 per cent solution) showed immotile embryos in a good many of the cases ten days later, while most of the eggs were still undivided and apparently in a state of preservation. As has been previously stated, Foster (1916) notes that ascarid eggs could be kept alive for months, even years, in formalin, and that it is a very satisfactory medium in which to incubate ascarid eggs. Foster (1916) cites Morris (1911), who kept some feces containing eggs of *Ascaris lumbricoides* in a 2 per cent solution of formalin for two years, at the end of which time he found some of the eggs contained actively motile embryos.

## VOLATILE OILS AND OTHER READILY VOLATILE AGENTS.

This category comprises a number of substances belonging to a variety of chemical groups, and having in common the property of being only sparingly soluble in water and remaining solid or liquid at ordinary temperatures, but volatilizing readily. The chief substances of this group that were tested are: chloroform, ether, oil of chenopodium, oil of turpentine, toluol and xylol.

*Chloroform:* Eggs kept in this medium were found dead at the end of three days. The eggs were well cleared, the nuclear membrane was well outlined and the nuclear material within was very much cleared. The inner membrane was invisible.

*Ethyl Ether:* Eggs in this medium were found dead at the end of three days.

*Oil of Chenopodium:* Eggs in this medium at the end of three days showed no development, being apparently preserved. At the end of five days some eggs showed signs of division, but most of the eggs were distorted and apparently dead. At the end of seven days the eggs were very clear, and were breaking down and shrinking decidedly.

*Oil of Turpentine:* Eggs reared in this medium showed motile

embryos in a great many cases at the end of five days. A great many of the eggs, however, were deformed, being flattened on one side and showing very little development. At the end of seven days the embryos that had developed were dead, most of the eggs being flattened on one side and decomposing.

*Toluol*: Eggs in this medium showed embryo development in one or two cases at the end of three days, but nearly all the eggs were cleared and were undergoing degeneration. Where embryo development was noted, the embryos were in a poor state of preservation, being immotile and breaking down.

*Xylol*: Eggs in this medium showed embryo development at the end of three days, but the embryos were apparently dead.

The ova of *T. limbata* thus do not appear to be very resistant to the action of the volatile agents used.

#### MISCELLANEOUS AGENTS.

This group comprises hydrogen peroxide, which is known to possess very powerful bactericidal properties, due to its oxidizing effect on organic matter (diluted to 0.105 per cent it destroys all vegetative forms in a few minutes), and preparation X,\* a hypochlorite (a mixture of sodium hypochlorite, sodium chloride, calcium chloride, calcium hypochlorite, made alkaline with lime water and containing 3 to 4 per cent available chlorine).

Eggs kept in hydrogen peroxide (commercial 3 per cent solution) showed some motile embryos at the end of six days, but most of the eggs were undivided and apparently killed.

Eggs kept in a full-strength solution of germ-X which has a phenol coefficient of 10+ and which is advocated in strengths of one fluid ounce (two tablespoonfuls) to one or two gallons, showed motile embryos at the end of three days.

Thus, hydrogen peroxide and a hypochlorite, both widely used in bactericidal disinfection with much success, were both ineffective against the ova of *T. limbata* in much more concentrated strengths than those advocated for bacterial disinfection.

#### EFFECTS OF MOISTURE, TEMPERATURE, ETC., ON THE RATE OF DEVELOPMENT OF THE OVA OF *TOXASCARIS LIMBATA*.

To determine the effect of lack of moisture on the development of the ova of *T. limbata*, some feces were screened and then spread

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\* Germ-X.

over filter paper and allowed to dry at room temperature (24 to 29.5° C.) Three days after the feces were thus treated, actively motile embryos were found. The lack of moisture thus apparently seemed to hasten embryo development of the ova.

To determine the effects of temperature on the rate of development of the ova, eggs were screened and cultured in water to which 5 per cent potassium dichromate had been added. One culture was placed in the incubator and kept at a temperature of 37.8° C., another in an oven at a temperature of 49 to 60° C. for twenty hours, and the other placed in the refrigerator at a temperature of 10° C. At the end of three days, motile embryos were found in those eggs kept in the incubator, those kept in the oven were dead, while those in the refrigerator showed very little development. At the end of eight days the eggs in the refrigerator were showing division, and at the end of fifteen days were very highly segmented. At the end of twenty-eight days the eggs were still highly segmented, but no embryos were found, and at the end of thirty-eight days actively motile embryos were found.

Low temperatures thus retard the development of the ova of *T. limbata* (thirty-eight days for embryo development at 10° C., while at room temperature, 21 to 33° C., development takes place in three days). Temperatures as high as 37.8° C. are very favorable for their development, while temperatures of 49 to 68° C. for several hours apparently kill. It is interesting to note that Wharton (1915) finds that the optimum temperature for the development of the ova of *Ascaris lumbricoides* is about 30° C., and that at the temperature of 37° C. the ova are killed after some time, and above this temperature they die rapidly. We also find that low temperatures retard the development of the ova of this species without killing. He further states that pig and calf ascarid eggs must be completely developed before exposure to a temperature of 37° C. or would die, while horse and dog ascarid ova would develop at this temperature.

To determine the effect of the oxygen supply and bacterial action on the development of the ova of *T. limbata*, the following tests were made: Unscreened feces containing ova were placed in tap-water and at the end of eighteen days all the eggs were apparently dead, the nuclear material showing signs of decomposition.

Screened ova were placed in tap-water, and at the end of thirty days very little development was noticeable, most of the eggs undergoing degeneration.

Screened ova were placed in distilled water, and at the end of fifteen days motile embryos in good condition were found.

Screened and unscreened ova were placed in tap-water with 10 per cent potassium dichromate added, and at the end of three days actively motile embryos were noted.

The failure to obtain development in the first two cases (screened and unscreened feces in tap-water) is probably due to bacterial and other growths in the culture which utilize a large amount of the available oxygen, or even may excrete toxins detrimental to the development of the ova. In the latter cases, where the possibility of bacterial growth is reduced to a minimum and thus more available oxygen supplied to the ova, development is hastened. It is interesting to note that Wharton (1915) found that the eggs of *Ascaris lumbricoides* developed rapidly in tap-water and irregularly or died in distilled water. His results are just the reverse of those that I have obtained with the ova of *T. limbata*.

It is also interesting to note the results of the experiments of Stiles and of Stiles and Gardner (1911) on the fermentation in water of the eggs of *Ascaris lumbricoides* and *Necator americanus*. Fecal material kept in water and examined after 68, 117, 144, 317, 232, 349, 357 and 358 days showed all the hookworm eggs identified were dead. The longest period of time after which they were able to find live hookworms (*Necator americanus*) eggs under those conditions was seventy days. The longest periods after which they were able to find *Ascaris lumbricoides* eggs was 117 to 121 days. Fermentation for four months in an L. R. S. privy is, therefore, advocated for killing all the hookworm eggs, and fermentation for three months for killing nearly all, probably all, the hookworm eggs.

It is held that, apart from the question of concentration, the action of an ovocidal agent depends, biologically, on the resistance of the ova and on the temperature; and, physically, on the capacity of the articles under examination to absorb moisture. The concentration of the ovocide is held to stand in direct relation to its action, within certain limits, but if the concentration be very high the action is only slightly increased, whereas, conversely, extreme dilution weakens the effect but slowly—though this is not always true, the effect alternating rapidly, up or down, when the concentration is modified. The resisting power of parasitic ova has already been mentioned, and, so far as the temperature is concerned, its influence is based on the physiologically vital processes

of the ova. An organism which is cooled below its optimum temperature gradually passes into a state in which the processes of nutrition and development are almost entirely suspended, according to the degree of cooling given. In this condition the ova has a corresponding low tendency to undergo chemical changes, and the ovocidal effect diminishes in intensity. On the other hand, the cell is far more open to chemical attack at its optimum temperature, at which all the vital processes, and therefore all the chemical reactions, go on best, while, as the temperature is raised above this point, the tendency of the ova to decompose increases, and they fall an easier prey to the destructive action of poison. Hence, the action of ovocidal agents is facilitated by a rise in temperature. Since the eggs in these experiments were cultured at room temperatures which varied between 21° C. and 33.2° C., the higher range of temperatures persisting over night (an interval of fifteen hours), the action of the various chemical agents were given optimum conditions under which to operate.

#### SUMMARY.

Parasitic ova are very resistant to various chemical disinfectants.

The usually advocated germicidal strengths are markedly effective against the ova of *Toxascaris limbata* for many substances.

The ova of *T. limbata* show surprising resistance toward acids, alkalis (especially against caustic soda and lime) and metallic salts.

Ethyl alcohol in strengths up to 70 per cent and formaldehyde in varying strengths up to approximately 40 per cent are remarkable in their ovocidal action against the ova of *T. limbata*.

The phenol derivatives, primarily the cresols which have been dissociated by means of soap solutions, such as preparations A, B, C, D and E (varying in their lethal action on parasitic ova according to their corrosiveness), offer the best possibilities as ovocides against parasitic ova of all substances tested.

Most of the volatile disinfectants are apparently efficacious in killing the ova of *T. limbata*.

The ova of *T. limbata* are evidently very resistant to conditions of drought and to low temperatures, and require an ample supply of oxygen for the best development. Rapid development is possible at temperature as high as 37.8° C., but the ova are killed at temperatures of 49 to 60° C., and development is materially retarded at temperatures as low as 10°C.

The writer wishes to take this occasion to very gratefully acknowledge the invaluable advice and assistance of Dr. M. C. Hall, through whose instigation this work was conducted.

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## REPORT OF A CASE OF POPLITEAL ANEURYSM—MATAS OPERATION—RECOVERY.

By GEO. T. TYLER, Jr., A. M., M. D., Greenville, S. C.

The patient, J. C., colored, age 32, laborer, was admitted to the hospital complaining of painful swelling on the back of the right leg, behind the knee, of eight months' duration. It has gradually increased in size until he can only slightly bend the leg. No history of injury.

Examination showed a tall man of slender build. The general physical examination was negative. There was swelling of the right leg and knee, with a tumor in the popliteal space to the outer side. Swelling of the leg extended to the ankle. Pulsation could not be made out of the *dorsalis pedis* artery. There was fluid in the knee-joint. The tumor occupied the entire popliteal space, extending also to the calf of the leg. It could be seen to pulsate. On palpation it gave an expansile pulsation; a thrill was perceived; a bruit was heard on listening over the tumor. The upper extremity of the fibula was very loosely attached to the tibia. Knee-jerks were absent. The patient complained of pain and paresthesias in the foot and toes. Pressure on the tumor caused pain. There was no marked arterio-sclerosis and, except for the aneurysm, the patient's

condition seemed good. A specimen of blood was taken for a Wassermann. If it were positive, treatment was to be undertaken, and operation done later. The patient, however, complained so much of pain that it was determined to operate at once. The report received after operation was: + + + +

Operation February 18, 1918. Ether anesthesia; tourniquet around thigh; longitudinal incision over tumor. The external popliteal nerve lay flattened over the thinned outer portion of the gastrocnemius muscle. This was drawn aside, the muscle fibers were separated and the sac opened. Almost a liter of clotted blood was removed from the aneurysm. The opening in the artery was elliptical, about three c. m. long, its longest diameter being longitudinal to the axis of the vessel. The accompanying

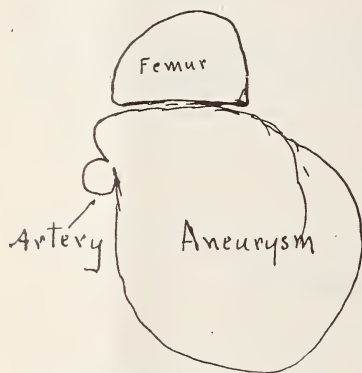


diagram shows the relations of the aneurysm, artery and opening. Since closing the rupture in the vessel would not encroach upon its lumen, this course was decided upon. Over a rubber tube coated with sterile liquid petroleum, interrupted sutures of fine silk were placed. This silk was saturated in petroleum. The tube was then withdrawn and the sutures tied. Additional ones were placed wherever it seemed likely that blood might escape. This row was reinforced by a second one. The wall of the sac had several large sclerotic patches. To close the openings of all the

anastomosing branches would have required dissection much greater than already done; hence the wall was reefed with interrupted sutures of Pagenstecher until a compact mass resulted. The muscle and skin were then closed. At this stage the tourniquet was released. A pulsation appeared, and blood oozed between the skin edges. The tourniquet was immediately tightened. Three silkworm gut sutures were taken into the deep tissues and tied over small rolls of gauze. A snug bandage was applied over the dressing, when the tourniquet was again released, but not removed until all danger of sudden hemorrhage had passed—three days.

Recovery from the operation was uneventful. There was a discharge of broken-down blood from the wound several days after operation. I explain this in the following way: the collateral openings into the aneurysm were not sutured. When the tourniquet was released blood rushed in through them. The bandage, and possibly the sutures, prevented further bleeding. This blood broke down and escaped from the wound. A part of the sac also came away.

The patient had very little pain after operation. The foot remained warm, and the swelling of the leg and knee went down, but pulsation of the dorsalis pedis was not restored. He developed a foot-drop—caused, most probably, by an injury to the external popliteal nerve. For two months also he could not flex the leg on

the thigh. Five injections of salvarsan with mixed treatment were given during his stay in the hospital. When discharged on April 15, 1918, he was walking with crutches; he could bend the leg slightly, and there was some improvement in ability to extend the foot. The leg was very little larger than the other; no fluid was in the knee-joint, but a small sinus persisted at the lower angle of the wound. There was no evidence of weakness of the vessel wall at the line of suture.

I did not see the patient again until June, 1918. He was doing day labor; could walk with slight difficulty. Of course, he had neglected his treatment. Improvement had been made in his condition, but it was slight. He was sent to the venereal clinic of the U. S. P. H. Service, where he was given more salvarsan and mercury. I saw him there in August, 1918. He could bend the leg easily; had regained more power to extend the foot. The wound was entirely healed; there was no swelling in the leg nor fluid in the knee-joint. There was no pulsation of the dorsalis pedis artery. He loses no time from his work. It is planned to secure a specimen of his spinal fluid when he returns on October 20. He had not returned for six weeks.

It is impossible to say whether the potency of the artery was restored by the operation. Evidently the collateral circulation was sufficient to supply the leg below the aneurysm. It is interesting to note that, although the branches opening into the aneurysm were not closed, compression effectually controlled them.

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## EFFECT OF LEMON JUICE IN PELLAGRA.\*

By J. N. ROUSSEL, M. D., New Orleans.

There has been so much controversy anent the treatment of pellagra that it is with fear and trepidation that I venture to offer what I consider in a measure a new remedy for it in the form of lemon juice. My results have been so remarkable that several of my friends have urged that I report them.

The juice of three or four lemons daily will simply work wonders in a pellagrin. It is quite the usual thing to see patients practically helpless—unable to walk except with assistance—whose

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

mouths are ulcerated to a sorrowful degree, and with every evidence of the ulcerations extending through the entire gastro-intestinal tract; whose hands and feet are ulcerated and, in fact, who present every evidence of a well-developed case of pellagra, get practically well in the short space of two or three weeks.

The idea of using lemon juice occurred to me three years ago, when a young man, a devout Roman Catholic, applied to the Touro Infirmary clinic for treatment. He presented a typical case of what I conceived to be pellagra. He explained that during the Lenten season he had practically starved himself, and, while the case looked like any other case of pellagra, I took the position that it was merely a case of land scurvy, and on that ground I prescribed lemon juice. In about two weeks he was apparently well.

I then began administering lemon juice to all cases of pellagra presenting themselves, and lo and behold! they proceeded to get well in about the same length of time.

Now, the question arises, is not most of our pellagra really land scurvy? As far back as 1578 pellagra was known in Italy as Alpine scurvy, and might they not have been right in so designating it? From the point of view of the dermatologist, pellagra is nothing more than one of the varied types of the exudative erythemas, which, as we know, are often caused by errors of diet, but it is quite possible, as in the case of the erythemas, that there may be several causes.

From my experience, I am convinced that most of our pellagra is of the scorbutic type, brought about by the fact that our people, especially those living in our sawmill towns, are literally living out of tin cans and cartons—living on predigested and ready-cooked foods—foods about which we know nothing and about which, I am sure, the most talented chemist in the world can tell us nothing.

Who can tell us what chemical changes have taken place in a piece of meat a year after it has been cooked, or in milk that has been condensed and canned for a year, or, for that matter, in anything of the vegetable line that has been parboiled and incased in a tin can for an indefinite period? No one knows, and yet our people are practically living off this stuff in some communities. A prominent sawmill man told me that tin cans were one of their great sources of annoyance—they had to employ people to gather them and haul them away.

Now, to get back to the lemon juice. I want to call attention to

the fact that I mean the whole juice of the lemon, and not citric acid. There is something else in lemon juice besides citric acid, and it is probably that "something else" that does the work. It is a well-known fact that lemon juice will cure scurvy, but that citric acid will not. This fact is too well established to discuss further.

I have tried oranges, with very indifferent success. Oranges, as we all know, belong to the citrus family and do contain a small quantity of citric acid. But there is something else in the orange, also, which may account for the fact that orange juice is not as beneficial as lemon juice.

In the October number of the *Journal of Cutaneous Diseases*, Davidson, of Los Angeles, tells us that, of all our California fruits, the orange is the most deleterious. The strawberry outranks it as a cause of urticaria, but the orange is more prone to cause the furred tongue, cloyed appetite and general depression—a symptom group that in our present state of knowledge is classed as biliousness. I have personally seen a number of children, especially of the eczematous type, so to speak, who could not tolerate the smallest quantity of orange juice, but who took and thrived on lemon juice.

Now, while I have an abiding faith in the efficacy of lemon juice in pellagra, I am of the opinion that we should only expect satisfactory results in patients not yet bed-ridden, for it has been my experience, and I am sure that of others, that when a pellagrin has once taken the bed from sheer inability to navigate, the meridian between the cradle and the grave has been passed—a point at which many arrive, but few return. In these cases I would not expect lemon juice to be of much service, nor would I expect anything else to be of much benefit.

This, I think, is not unreasonable, because we all know that in at least a few of our diseases, such as cerebrospinal meningitis and tetanus, unless the remedy is applied early in the disease the majority of them die. But from my experience of twenty-two years in the medical profession, at this time lemon juice might appear as too plebeian a remedy to attract any attention. You can't put it in the benzol ring. That explains it in a nutshell.

In cases of gastro-intestinal involvement, where the bowels are moving many times a day, I am in the habit of administering about an ounce of castor oil every other day. I believe this to be superior to any of the astringents, such as subgallate of bismuth and the like.

To the nervous symptoms I have paid little or no attention, as they seemed to subside along with the others. However, a few cases have complained of sleeplessness, and in these I have employed chloretone to much satisfaction.

The skin lesions need little or no attention. I believe any protective dressing will do. My preference is for a wet dressing, where it can be applied conveniently. Normal salt solution, I think, does as well as anything, and is clean and comfortable.

#### DISCUSSION ON THE PAPER OF DR. ROUSSEL.

**Dr. A. A. Herold**, Shreveport: Dr. Roussel's paper is very interesting, and lemon juice in pellagra is well worth trying. I dare say that none of us except the doctor have tried the remedy in this disease, for which we have so many would-be specifics. My principal cause for rising is not to discuss lemon juice in the treatment of pellagra, which I shall try out in the next case, but simply to ask the doctors present not to despair of their bed-ridden cases. I have seen quite a number of them, some almost moribund, to use a common expression, get well, provided they were tidied over from the severe condition.

Last year I read a paper at Alexandria on the subject of the use of normal horse serum in pellagra. I do not advocate it in every case, and I do not advocate it in those cases in which Dr. Roussel recommends lemon juice. I advocate it in those cases that are bed-ridden and you have to tide them over with something when they cannot eat or retain their food. These patients may be conscious or unconscious; they may or may not be able to control their bowels; they may have anywhere from five to twenty or fifty bowel movements involuntarily. These are the cases in which I have used normal horse serum. If they should develop anaphylaxis it will not kill them, and you have everything to gain and nothing to lose, and this serum works wonderfully in these cases.

**Dr. J. N. Roussel**, New Orleans (closing): I did not mean to infer that all of the bed-ridden cases die, but the rule is that they do die. Where there is sheer inability to walk, I give them the juice of three or four lemons a day in the form of lemonade. I have seen twenty-five cases get entirely well in practically no time from this method of treatment. In only one instance have we had any resulting trouble. In one very bad case the woman was in very bad shape; she was relieved of all her skin symptoms and all ulcerations of the mouth and vagina and rectum, everything apparently having healed, but she was left with a colitis. I sent her to Dr. Simon, and he was of the opinion that her colitis was due to her weakened condition and nothing else. She was entirely well of the pellagra. She has since recovered from the colitis, and she was perfectly well up to two or three weeks ago. She had had no recurrence.

The main thing is that these people live on tin or canned goods. The women in these communities where pellagra prevails have to do most of the work, and such women, in order to avoid hard work, buy canned goods, which is fed to the people. We do not see pellagra in large cities; it is almost unheard of in New Orleans. Nearly all cases of pellagra are found in towns. There were nearly one hundred cases in Opelousas at one time. It is because of the way the people live that they have pellagra.

**THE SURGICAL TREATMENT OF POTT'S DISEASE.\***

By PAUL A. McILHENNY, M. D., New Orleans.

Surgical interference in tuberculosis of the vertebral column is now generally advocated by all orthopedic surgeons of America. This is a broad statement and may be thought by some to mean that operative measures are to be taken in all such cases. Such an understanding is certainly erroneous and must be corrected, for already too many cases of Pott's disease have been subjected to operation when conservative treatment would probably have produced more satisfactory results. We must, therefore, divide these cases into classes, as to age as well as to pathological conditions, and decide which should be treated with conservatism and which by operation. First, one should consider diseased articulations of the vertebral column very similar to other diseased joints, in so far as the pathological process is concerned, and deal with them accordingly, our first thought and aim being to so treat the disease that cure with non-painful motion, even to a slight degree, may result, and only when we are very sure that motion is impossible should we resort to a method of treatment which results in ankylosis.

When operations upon the spine for the cure of spinal caries were popularized by Hibbs and Albee an enthusiastic wave swept over the whole country, and cures were sought by operation in all cases, in all ages and at any stage of the disease. Now that the wave has subsided and cool judgment has stepped forward, operation is resorted to only in cases where cure with motion is impossible. As this disease is found in all ages, and as children bear shock badly, one should hesitate when contemplating an operation upon the very young, also upon the aged; therefore it may be assumed that cases selected for operation would fall between early adolescence and middle-age, the very young and aged being treated by conservative treatment, which time has proved to produce most satisfactory results.

We know that ankylosis results in all cases of joint tuberculosis when nature unassisted attempts a cure, but we also know that it is possible to preserve a certain amount of motion in many such cases, provided treatment is begun early enough, or, in other words, before the articular surfaces have been destroyed, namely, in the

\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

first stage, and even in some cases where the joint has been eroded, cure with limited motion is possible. In operating we merely assist nature in stiffening or ankylosing the diseased area of the spine, and we therefore eliminate any possibility of future motion in that section. When the disease has progressed to the point of abscess formation, marked deformity or paralysis, then, and then only, may we claim that cure with motion is impossible, and operations calculated to hasten ankylosis should be resorted to. Therefore, one should rather discourage operation in young children, the aged, and in those in poor physical condition, never to be resorted to when the disease is in the first stage, and rarely in the early second stage, but rather to be advised in cases from adolescence to middle life who present symptoms of the second and third stages of the disease. Operative interference, therefore, though of great value in certain selected cases, should not be resorted to in the majority of cases of Pott's disease, but rather should be held as supplementary to conservative treatment. Though these operations are not tedious and do not consume much time, they are followed by considerable shock, so that cases subjected to them should be carefully selected. I think the principal points to be considered before operating are: First, to be sure that the vertebral column is actually diseased; and, second, that the disease has advanced to such a point where cure with motion is impossible. Such operations certainly shorten the duration of treatment, but, as a stiff back results, does it compensate when the conservative methods, though of longer duration, may preserve a certain amount of motion? I think not, and therefore use the conservative treatment in all early cases, especially in children, and only resort to operation in selected cases, when it is very palpable that motion can never be restored.

In the Hibbs operation the spinous processes immediately above, throughout and immediately at the diseased area are fractured at the base, and the tip of each mortised into the base of the one next below it; in this way fusion is produced between the posterior portions of the vertebræ, and eventually forms a posterior support throughout the diseased area.

The Albee operation is one of bone-grafting, in which an autogenous bone-graft is taken from the tibia and placed in the split processes, extending from the second above to the second below the diseased area. I have used this operation in all my cases with satisfactory results, and feel that it should be heartily indorsed. It

should be borne in mind, however, that, no matter how perfect are the results following operation, they do not compare to results with the reëstablishment of non-painful motion.

When an operation is contemplated the patient should be placed upon a Bradford frame, which is periodically corrected until the "buckle" has been obliterated, or, if paralysis was present, until voluntary motion has returned. In the Albee operation a graft long enough to extend from the second vertebra above to the second vertebra below the diseased area is taken from the tibia and shaped to the curve of the affected section. A long curved incision is made to one side of the spine, so as to expose the spinous processes above and below the area involved; the processes are split with a wide chisel or an electrical saw down to the lamina and the halves forced apart. The graft is then placed in position and held down with heavy chromic gut sutures; the superficial structures are sutured over the graft and the wound closed without drainage. Dressings are so applied as to prevent pressure upon the wound and the patient placed immediately upon the Bradford frame, where he should be kept for a month or six weeks. A plaster corset may then be applied in a position of lordosis, and at the end of the eighth week he should be allowed up with crutches. Support with plaster corsets should be kept up for six or eight months, by which time ankylosis should be complete.

**Case 1.** C. T., white girl, age eleven years. First seen in June, 1913, presenting a decided buckle in dorso-lumbar region. X-ray showed eleventh and twelfth dorsal and first lumbar to be involved. Plaster corset applied in position of lordosis. On July 1, placed on Bradford frame. By August 1 buckle had been corrected and an Albee operation was performed; patient put back on frame. August 14, plaster corset applied, and patient sent home on September 1. Patient returned for casts on December 11 and on February 14, 1914, when X-ray showed graft in place and a formative process. This case died of pneumonia in April, 1914.

**Case 2.** L. W., white male, age ten years, was under conservative treatment for three months before admission on February 21, 1917. Presented a decided buckle in the lumbar region. X-ray showed tuberculosis of second, third and fourth lumbar vertebræ, with destruction. Placed on frame till March 30, when buckle had been corrected. Operation performed and patient put immediately upon frame. May 20, corset applied in lordosis. A second corset was applied on August 27. Corset removed November 13, 1917. X-ray showed graft in place. Discharged.

**Case 3.** B. M., white male, age thirty-seven, weight 170 pounds, height 5 feet 5 inches. Was first seen by Dr. Graffagnino in June, 1916. He had had pains in the back and legs for some weeks before seeking advice. A small buckle was found in the lower dorsal region, and a

diagnosis of tubercular spondylitis made. He was advised to have X-ray pictures taken and undergo conservative treatment, both of which he disregarded. He was not seen again till February, 1917. The disease had progressed to marked deformity in the dorsal region, with only partial control of sphincters and muscles of legs, and he was unable to walk, even with crutches. He was sent to the Hotel Dieu, and I first saw him in consultation with Dr. Graffagnino on April 19, 1917. He then presented a marked dorsal kyphosis, with paralysis of both legs from hips down; patellar reflex absent; some ankle clonus; control of sphincters lost; both ankles were swollen and there was a trophic ulcer on the outside of the right heel. An X-ray showed a decided tuberculosis of the ninth, tenth and eleventh dorsal vertebrae. He was placed upon a Bradford frame, which was bent from time to time until the kyphosis had been reduced. By the middle of May he had regained control of his muscles, and I advised an Albee operation. On May 21, assisted by Dr. Graffagnino, I placed a tibial graft in the split spinous processes from the seventh dorsal to the first lumbar, suturing it into place with a No. 3 chromic gut. After the dressings were applied he was immediately placed on the frame. He was considerably shocked, but by evening was doing well. He was kept upon the frame till July 12, when a plaster corset was applied in a position of general lordosis. He was allowed to go home on July 21, and on August 15 allowed to walk a little. About November 15 he resumed his occupation of driving a vegetable wagon, and on February 22, about eight months after the operation, the cast was removed. He now has complete control of his muscles, and so far has had no return of his trouble. The graft can be felt throughout the operative field.

**Case 4.** P. L. C., male, age thirty-seven years, was admitted July 20, 1917. Presented a kyphosis in the lumbar region. Pains in back and down both legs. X-ray showed tuberculosis of first and second lumbar vertebrae, with destruction. Was placed on a Bradford frame in a position of general lordosis. By October the buckle had been reduced, and on the 24th an Albee operation was performed, the graft extending from the eleventh dorsal to the fourth lumbar vertebra. Placed immediately on the frame again. There was considerable shock following the operation, but by evening he had reacted. On December 1 a corset was applied in a position of lordosis, and he was allowed up on December 10. He was allowed to go home on January 23, still wearing the plaster corset, and was to report for a new cast during March, but has not been heard from since he left the hospital.

#### DISCUSSION ON THE PAPER OF DR. McILHENNY.

**Dr. John F. Oechsner, New Orleans:** In connection with what Dr. McIlhenney has said, I desire to call attention to two facts, one of which relates to medicine in general, and that is, unfortunately, the pendulum swings too far in regard to operations, and everybody who offers himself as a subject is operated on. I think to-day there are entirely too many Albee operations done, certainly as regards spinal fixation, and the pendulum seems to be swinging again to its natural position.

There are two things to be borne in mind, one of which is, what is the object of the fixation operation? You do in a more physiological way and a surer way what you attempt with a plaster of Paris jacket. You resort to fixation of the spine to do what? To prevent the further

increase of pressure. It is an unfortunate thing that with our tuberculous joint infections we are never in a position to prognosticate in every individual case. We must plead guilty to the fact that the majority of our cases of tuberculous arthritis, whether of the hip or spine, go on to bony ankylosis. It is not our fault, but nevertheless we have not improved this condition as yet. I do not know that we shall be able to meet it by any mechanical surgical methods. I hope that serum therapy may offer some solution of the problem.

The point I want to make is in Dr. McIlhenny's case the result is ideal, and he has accomplished by the treatment undertaken in this case what we accomplish by plaster jackets, only the latter are uncertain. I would like to make a plea, therefore, that in all of our work and in all our operations we see to it that the pendulum does not swing too far in one direction, and it seems to have reached a stationary point with reference to the Albee operation. In Pott's disease we should strive to be conservative and judge every case on its individual merits, and not proceed recklessly in the fixation of the spine in every case of Pott's disease that comes to us.

**Dr. E. Denegre Martin, New Orleans:** I think I can answer some of the questions that have been raised by the essayist, and it resolves itself into the same old trouble of practitioners getting hold of cases that are not diagnosed early. The profession may be blamed in some instances, but, as a matter of fact, the individuals themselves, many of them children, come to us when the joints have already passed the stage where it is possible to do anything at all. We know that tuberculosis is cured by rest. It is in many cases cured spontaneously, and it is a question of fixation. Look at the thousands of cases of hip-joint disease that are cured by rest. We can cure these cases by rest, but the trouble is there are so many beginners in the profession to-day who are anxious to become surgeons, and who are becoming surgeons at the expense of the poor man who is willing to be operated on, and who have not had experience enough to treat these cases properly, or to know that they can be treated by different methods without going directly into an operation. The report made by Dr. Clark was one of the best illustrations of that fact, namely, that men are operating in acute cases of pyosalpinx when they ought not to, in that way getting a high mortality. The results from operation are not what they should be, and that is an important answer to this problem of being more conservative, rather than radical, in the treatment of such cases as the essayist has reported.

**Dr. P. A. McIlhenny, New Orleans (closing):** I want to thank Dr. Oechsner and Dr. Martin for backing me up. I cannot conceive of any more gratifying results than to see a child cured of a tuberculous joint lesion with motion, and I take that gratification in having been allowed the privilege of operating on this poor individual. If I could have gotten him in the early stage, before there was destruction of bone, I would have taken greater satisfaction in securing for him more motion, and not putting him in a cast, where he is incapacitated for the rest of his life. That is the reason I make a plea for conservatism in these cases. There is still some doubt that ankylosis is not the result, but there may be possibly a considerable amount of motion left.

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## MISCELLANY

## NOTES ON TROPICAL DISEASES.\*

By LODILLA AMBROSE, Ph. M., New Orleans.

## DYSENTERY.

Tribondeau<sup>1</sup> and Fichet (Toulon) reported on the results of the bacteriological analysis of the feces in 217 cases of dysentery coming from the corps expéditionnaire d'Orient. In 169 cases the results of the examination were negative as far as species supposedly dysenterigenic, an excessive figure explained perhaps by the fact that many of the patients of the group were already on the road to recovery when they reached Toulon. The forty-eight positive cases gave: ten times the dysenteric *ameba*, twenty-three times the bacillus of Shiga, only twice the Y bacillus of Hiss, thirteen times the bacilli of the Morgan group. This conclusion is that the last named group has a place in the list of dysenteric bacilli.

2. Ortoni<sup>2</sup> and Ameuille reported on amebic dysentery as observed during five months in the contagious hospital of a sector corresponding in the number of its population to a large city. Before the outbreak of the war amebic dysentery had remained a tropical disease seen by French physicians almost exclusively in the colonies of Africa and Asia, or in France in former colonials. References are given to earlier reports of amebic dysentery in France. In these five months they had found twenty-eight cases of dysentery, seventeen bacillar and eleven amebic. Three of the eleven amebic cases were colonials with history of intestinal affections, eight had never left France; These patients were from different regiments; some had been incorporated in colonial regiments, and some had occupied trenches previously held by African troops. Bedside examination of fresh feces is insisted on as a means of establishing the parasitic nature of cases of dysentery. They considered that many cases of amebic dysentery never reached the hospital, and that the disease is becoming endemic in France.

d'Hérelle<sup>3</sup> had examined feces from forty cases of dysenteric affections, seventeen being civilians and twenty-three soldiers, all having contracted the dysentery in France. He found in two cases *B. fecalis alcaligenes*; in twenty-one cases, germ belonging to type

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\*From the *Bulletin de l'Académie de Médecine*, Paris, for 1916.

described by Gay and Duval (Shiga type, Hiss type, and a new bacillus previously reported by d'Hérelle were found, but Flexner type was not found); in seventeen cases, group of Morgan. Increase in bacillar dysentery was attributed to war conditions.

Capitan,<sup>4</sup> to whose service belonged twenty-one of the patients reported on by d'Hérelle, supplemented his report. Regarding the new bacillus of d'Hérelle (five cases,) he said:

"The dysenteric forms due to this new bacillus have manifested themselves especially by very abundant choleriform feces, not always bloody and glairy, and often accompanied by very grave general choleriform accidents. We have lost one of these patients in a few days, and another was moribund for several days. He recovered very slowly, and thanks to a very active treatment. In two other cases the seriously affected patients recuperated very slowly. In fact, it seems that the bacillus determines in man a specially grave clinical form, which is analogous to that which its inoculation produces in animals. These forms of dysentery seem to be particularly contagious."

Capitan himself and a nurse contracted it from patients, in spite of minute precautions.

#### RELAPSING FEVER.

Petzetakis<sup>1</sup> saw his cases in Greece in 1916. He said the differential diagnosis was to be made between relapsing fever and malaria, yellow fever, typhoid fever and meningitis. Out of fifteen cases, he found four times the most complete meningeal syndrome, and three other times simply rigidity of the neck. On puncture, the liquid sometimes issued in a jet. His conclusions were:

"In the course of relapsing fever, a meningeal syndrome may appear very frequently, this being due to the increase in pressure of the cephalorachidian fluid. The liquid is clear and does not contain spirilla nor cellular elements. There is no albuminosis. The sugar remains normal. Exceptionally one may have an aseptic puriform reaction. In this case lumbar puncture should be done, and it constitutes a sure method of combating the very intense cephalalgia. Treatment with neosalvarsan is the therapy of choice. Mercury and electrargol may be tried."

1. Tribondeau and Fichet. Résultats de l'analyse bactériologique des selles dans 217 cas de dysenterie provenant du corps expéditionnaire d'Orient (C. E. O.). 3 s., lxxv, 317-318.

2. Orticoni, A., and Ameuille, D. Sur la dysenterie amibienne autochtone. 3 s., lxxv, 390-392.

3. Hérelle, F. d'. Contribution à l'étude de la dysenterie: nouveaux bacilles dysentériques, pathogènes pour les animaux d'expérience. 3 s., lxxvi, 425-428.

4. Capitan. Sur de nouveaux bacilles dysentériques. 3 s., lxxvi, 440-441.

1. Petzetakis. Le syndrome méningé au cours de la fièvre récurrente, ses rapports avec l'augmentation de la pression du liquide céphalorachidien; réaction méningée puriforme aseptique; efficacité du traitement par le 606; essai sur le traitement par l'électrargol et le mercure. 3 s., lxxvi, 253-255.

## NEWS AND COMMENT

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COEDUCATIONAL MEDICAL COLLEGES.—Sixty-five of the ninety medical colleges in the United States are coeducational institutions. The war has increased the tendency on the part of medical colleges to throw open their doors to women students, and women are taking advantage of the opportunities offered.

SANITARY TRAINS OF THE UNITED STATES ARMY.—The medical department of the United States Army has in less than six months established sixteen model sanitary trains, which are now running on the French railroads and are destined for the American Army. These trains have 630 beds each and more than 640 can be taken care of on one train. Each coach is provided with a bathroom. The train is lighted by electricity and has telephone connection between all the coaches.

ABANDONMENT OF UNSANITARY PRACTICE.—A letter has been addressed to Hon. Wm. G. McAdoo, director general of the United States Railroad Administration, by the Committee of Pollution and Sewerage of the Merchants' Association of New York, asking for the abandonment of the unsanitary practice of discharging the contents of toilets from trains upon the roadbeds of the railways of this country.

THE MISSISSIPPI VALLEY CONFERENCE ON TUBERCULOSIS, which met in St. Louis, October 2-4, elected the following members for the ensuing year: President, Sherman C. Kingsley, Cleveland; vice-president, Dr. J. W. Pettit, Chicago; secretary-treasurer, Paul L. Benjamin, Minneapolis. Des Moines was chosen as the next meeting-place.

BOSTON UNIVERSITY SCHOOL OF MEDICINE.—Announcement has been received that the medical department of Boston University has been thoroughly reorganized and henceforth will be non-sectarian in scope and character. Eminent physicians of the regular school will conduct courses in pharmacology and therapeutics, and clinical teaching will be given in the Boston City Hospital and the Robert Bent Brigham Hospital. Homeopathic materia medica will be taught as heretofore, with clinical teaching in the Massachusetts Homeopathic Hospital and allied institutions.

**THE WINYAH SANATORIUM.**—The Von Ruck Memorial Sanatorium, Inc., has taken over the Winyah Sanatorium of Asheville, N. C., and a new institution under that name is to be built and equipped as soon as the present war conditions permit. The sanatorium will be conducted with the same high-class accommodations as heretofore. Pending the erection and completion of the new sanatorium, a free clinic has been established and is now in operation. The laboratories will continue their studies and investigations under the supervision of Dr. Karl Von Ruck. The Winyah Sanatorium is designed to accommodate curable cases of pulmonary and other tubercular affections.

**ANESTHETIC TECHNICIAN.**—A letter addressed to the editors has been received from the Rockefeller Institute for Medical Research urging that the term "anesthetic technician" be applied to the nurse who administers an anesthetic. The claim is made that large institutions are employing the nurse anesthetist on the ground of economy, expediency, and even sentimentality. The letter states that, in order to understand the language of anesthesia, one must have intimate acquaintance with anatomy, medicine, surgery, diagnosis, psychology and special branches, and that nurses and lay persons without a medical degree have no more right to the term "anesthetist" than those who take X-ray pictures and who make urinary, blood or sputum examinations have the right to the terms "roentgenologist" and "pathologist."

**MEDICAL ASSOCIATION OF THE SOUTHWEST.**—The thirteenth annual meeting of the Medical Association of the Southwest met in Dallas, Texas, October 15, 16 and 17. In spite of war conditions and the influenza epidemic, an unusually interesting program was presented, and though the attendance was small, great enthusiasm was displayed in the activities of the association. The following officers were elected to serve during the coming year: President, Dr. M. M. Smith, Dallas; vice-presidents, Dr. L. von Treba, Chetopa, Kans.; Dr. O. B. Hall, Warrensburg, Mo.; Dr. F. W. Jelks, Hot Springs, Ark., and Dr. F. K. Camp, Oklahoma City, Okla.; secretary-treasurer, Dr. F. H. Clark, El Reno, Okla.; chairman committee on arrangements, Dr. Everett S. Lain, Oklahoma City, Okla. Oklahoma City was chosen as the convention city for 1918.

**FEW DRUG ADDICTS AMONG DRAFTED MEN.**—The War Depart-

ment has recently published the actual figures of the number of drafted men rejected for drug addiction, owing to the greatly exaggerated reports concerning them. Of 990,592 men examined in the draft up to January 1, 1918, only 403 were rejected for drug addiction and only 76 discharged for this reason. The ratio of rejections in the draft for drug addiction is only one man in each 2,500.

**THE VALUE OF THE VOLUNTEER MEDICAL SERVICE CORPS.**—The value of the organization of the Volunteer Medical Service Corps was demonstrated during the recent epidemic of influenza which swept the country. The call for doctors was so promptly met that it has called forth an expression of appreciation from the officers of the United States Public Health Service. Officials of the Volunteer Medical Service Corps are gratified that the organization was able to meet the emergency in this way, fulfilling the purpose for which it was created, namely, to place on record and classify information as to civilian physicians, so that a request for aid voiced by a government department could readily be supplied.

**THE PLATINUM SECTION** and the Section of Medical Industry, War Industries Board, desire to express appreciation of the hearty response made by physicians and dentists when the call for scrap platinum was made. As the governmental demand for platinum has been tremendously decreased by the curtailed war program, it is requested that no further platinum be tendered to the government.

**NEW YORK POLYCLINIC HOSPITAL TAKEN BY GOVERNMENT.**—An agreement has been reached whereby the Federal Government will assume control of the New York Polyclinic Hospital and Medical School.

**SAN SALVADOR QUARANTINES AGAINST YELLOW FEVER.**—The frontier between Guatemala and Salvador has been ordered closed by the Salvadorian Government because of the prevalence of yellow fever in Guatemala.

**THE MEDICAL REVIEW OF REVIEWS ANNOUNCES** that it has just purchased the third oldest medical journal in America, the *Buffalo Medical Journal*, founded seventy-four years ago by Dr. Austin Flint, and published regularly ever since. This is the third publication which the *Review* has purchased during the past few years. It will be greatly increased in size, beginning with the January, 1919, issue, but the subscription price is not to be increased.

**ALVARENGA PRIZE.**—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, amounting to about \$250, will be made on July 4, 1919. Essays intended for competition may be upon any subject, but cannot have been published. They must be typewritten, accompanied by an English translation if written in another language, and must be received by the secretary of the college on or before May 1, 1919. For further information address Francis R. Packard, secretary, 19 South Twenty-second street, Philadelphia, Pa.

**PERSONALS.**—First Lieutenant Wm. M. Johnson, M. C., has been transferred to Base Hospital, Camp Bowie, Fort Worth, Texas.

Dr. E. L. Leckert recently received his commission as captain, M. C., U. S. A., and left November 10 for Camp Greenleaf, Fort Oglethorpe, Ga.

Dr. Hilliard Miller received his commission during the month as first lieutenant, M. C., U. S. A., and was ordered to Camp Greenleaf, Fort Oglethorpe, Ga.

Dr. Wm. F. Wilson, formerly with Parke, Davis & Co., New Orleans, has accepted an appointment with the Louisiana Hospital for the Insane, Jackson, La.

**REMOVALS.**—Dr. Nathan Barlow, from 3864 Lafayette street to 9300 South Broadway, St. Louis, Mo.

Prof. R. Blanchard, from 226 Boulevard St. Germain to 4 Avenue du Président Wilson, Paris, France.

Dr. W. L. Wharton, from Naples to Jeffris, La.

Dr. C. L. Eshleman, from Maison Blanche Building to 1138 Third street.

**MARRIED.**—On October 26, 1918, Dr. William Edward Barker, Jr., lieutenant, M. C., U. S. A., to Miss Benedette Gordon Texada, both of this city. Dr. Barker is a Tulane graduate.

**DIED.**—On October 15, 1915, Dr. M. J. DeMahy, a prominent neurologist of this city.

On October 14, 1918, Dr. Waldemar T. Richards, a Tulane graduate and one of New Orleans' prominent young physicians.

On October 14, 1918, Dr. Guy Leary Odom, of Harvey, La., aged 38 years.

On October 14, 1918, Dr. Arthur Nolte, one of the best-known physicians of New Orleans, aged 58 years.

On November 2, 1918, Dr. Francis A. Meyer, aged 26 years, son of Dr. Albert J. Meyer, of Thibodaux, died at Shreveport, La.

## BOOK REVIEWS AND NOTICES

*All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

**Case Histories in Obstetrics.** Second Edition. By Robert L. DeNormandie, A.B., M.D., F.A.C.S. W. M. Leonard, Publishers, Boston.

This is a book of 500 pages in which the author presents groups of cases illustrating the fundamental problems which arise in obstetrics. It is one of the Case History Series, a group of books written by Boston authorities covering Medicine, Pediatrics, Surgery and allied branches, intended especially for classroom and clinical conferences.

The case reports have been carefully selected and cover practically every phase of physiologic and pathologic obstetrics, to which the author has added in detail the treatment followed in each case.

When the first edition appeared it was believed that the book would promptly find a place in obstetric teaching, and the early appearance of a second edition confirms the prediction. MILLER.

**The Medical Record Visiting List,** Wm. Wood & Co., New York, 1919.

Taking time by the forelock, this excellent visiting list is already being offered for next year.

It has been revised, improved, and modernized. The convenient tables have been added to and brought up to date, the table of dosage conforming to the latest revision of the Pharmacopeia.

The little volume is a handy visiting list, physician's diary and reference book.

## PUBLICATIONS RECEIVED

**LEA & FEBIGER,** Philadelphia and New York, 1918.

**The Surgery of Oral Diseases and Malformations,** by George Van Ingen Brown, D. D. S., M. D., C. M., F. A. C. S. Third edition.

**Anatomy of the Human Body,** by Henry Gray, F. R. S. Twentieth edition, thoroughly revised and re-edited, by Warren H. Lewis, B. S., M. D.

**Diseases of Infancy and Childhood,** by Henry Koplin, M. D. Fourth edition, revised and enlarged.

**C. V. MOSBY COMPANY,** St. Louis, 1918.

**Genito-Urinary Diseases and Syphilis,** by Henry H. Morton, M. D., F. A. C. S. Fourth edition, revised and enlarged.

**New and Standard Medical, Surgical, Nursing, Dental Publications.**

**Abstracts of War Surgery.** Prepared by the Division of Surgery, Surgeon General's Office.

**Principles of Bacteriology,** by Arthur A. Eisenberg, A. B., M. D.

**Röntgen Diagnosis of Diseases of the Head,** by Dr. Arthur Schuller. Authorized translation by Fred F. Stocking, M. D., M. R. C. With a foreword by Ernest Sachs, M. D.

**THE YEAR-BOOK PUBLISHERS,** Chicago, 1918.

**The Practical Medicine Series.** Vol. IV: **Pediatrics**, edited by Isaac A. Abt, M. D., with the collaboration of A. Levinson, M. D.; **Orthopedic Surgery**, edited by Edwin W. Ryerson, M. D. Series 1918.

**GOVERNMENT PRINTING OFFICE, Washington, D. C.**

**Public Health Reports.** Vol. 33, Nos. 35, 36, 37 and 38.

**Epidemic Influenza** (Spanish Influenza). U. S. P. H. S. Bulletin.

**Mortality Statistics.** 1916 and 1918. Seventeenth annual report. (Department of Commerce, Bureau of Census.)

**Public Health Reports.** Vol. 33, Nos. 36, 39, 40, 41 and 42.

**Report of the Health Department of the Panama Canal.** For April, May and June, 1918.

**P. BLAKISTON'S SON & CO., Philadelphia, Pa.**

**Medical Vocabulary,** by Marie.

**WM. WOOD & CO., New York, 1918.**

**A Manual of Physiology,** by G. N. Stewart, M. A., D. Sc., M. D., D. P. H. Eighth edition.

**Dispensaries. Their Management and Development,** by Michael M. Davis, Jr., Ph. D., and Andrew R. Warner, M. D.

**MISCELLANEOUS:**

**Transactions of the Society of Tropical Medicine and Hygiene.**

**Proceedings of the Medical Association of the Isthmian Canal Zone.** January, 1917, to June, 1917. (Panama Canal Press, Mount Hope, C. Z.)

**Reports and Collected Studies from the Institute of Tropical Medicine and Hygiene of Porto Rico.** Vol. 1, 1913-1917.

**REPRINTS.**

**Radiumtherapy in Hyperthyroidism, With Observations on the Endocrinous System,** by W. H. B. Aikins, Toronto.

**The Great Condition,** by David Kinley.

**The Disabled Soldier in Industry,** by Ernest L. Little.

**Hay Fever Resorts of the United States and Canada; The Treatment of Hay Fever by Pollen Extracts and Bacterial Vaccines,** by Wm. Scheppegrell, M. D.

**Mortality Among Women from Causes Incidental to Child-Bearing; A Study of Pellagra in the Mortality Experience of the Metropolitan Life Insurance Company, 1911-1916,** by Louis I. Dublin, Ph. D.

**Secretin.** II. Its Influence on the Number of White Corpuscles in the Circulating Blood. III. Its Mode of Action in Producing an Increase in the Number of Corpuscles in the Circulating Blood, by Ardrey W. Downs and Nathan B. Eddy.

**The Treatment of Amœbic Dysentery With Chaparro Amargosa** (Castela Nicholsoni of the Family Simarubaceæ), by Andrew Watson Sellards and Monroe Anderson McIver.

**Two Suggestions of Apparatus for the Teaching of Laboratory,** by Ardrey W. Downs, M. D., and George Hays, M. D.

**Biological Investigations of Tropical Sunlight,** by Andrew Watson Sellards, Wm. T. Bovie and Sumner Cushing Brooks.

**The Clinical Significance of the Irregular Distribution of Various Cells and Parasites in the Blood Stream and the Production of Abortive Leukæmic Changes and of Splenomegaly in the Macacus Rhesus,** by Andrew Watson Sellards and Walter Albert Baetjer.

**On the Differentiation of Auricular Fibrillation and Its Treatment,** by Thomas E. Satterthwaite, M. D.

**Blood Transfusion Simplified by the Use of Citrate Ointment,** by Henry W. Abelmann, M. D.

OWING TO THE INFLUENZA, the monthly Bulletin of the City Board of Health is delayed and we are unable to publish our Mortuary Report this month. Same will be printed next month, in order to avoid a break.

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## NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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### EDITORIAL

#### THE STABILIZATION OF AMERICAN MEDICINE.

Efficiency is the measure of success in every enterprise. The profession of this country may well be proud of the record for the past eighteen months, with nearly forty thousand of its membership in the field of duty at home and abroad. Of these, more than thirty thousand were volunteers, who, with a few months at most, and many with but a few weeks of training, assumed duty entirely new in many of its requirements. Just as the soldier in the rank and file has satisfied every one in his splendid achievements, so, also, has the American physician made good.

When the survey of medical men in the United States was made,

something like 140,000 names appeared on the list, made up of all sorts and conditions of men. The age limit of fifty-five eliminated some from service, and the conditions of fitness on account of irregularity of practice removed others from the available list. Conservative calculations put the possible number of physically and mentally acceptable men at about 60,000 to 70,000, of whom probably one-third were absolutely needed at home. The enrollment of medical officers has fully satisfied all demands, and their experience in service will have justified their patriotic response to the call.

The President of the United States and the War Department have decided upon the rapid retirement of all men who are not actually needed, and the mustering out of thousands of doctors is now in progress. Their communities will welcome the return of all these citizens, and they will surely bring to their homes much of the spirit of new enterprise which the army-life and experience have taught them.

In the meantime every community has suffered in some degree. The normal needs of the people have in part been satisfied. In the recent, and even now present, influenza epidemic, there have not been physicians enough, and the large death toll among the profession itself indubitably proves that the profession was much overworked in meeting the demands of the public need. The normal ratio of physicians to the population in the United States for many years has been as 1 to 500 or 600 (140,000 doctors to 110,000,000 people); with a reduction by 40,000, the ratio dropped to 1 to 1,000 or 1,100. The experience in such a universal pandemic has shown that there are not too many physicians normally, and that such a reduction as war has brought materially affects the health and healthfulness of the people in this country. The organized medical profession must deliberate this problem hereafter, especially as it relates to the supply of and demand for doctors.

Medical education, and the institutions which furnish it, have been the subjects of adjustment for the past ten years and the models have been derived from European standards. With the reconstruction of our politics, morals and general habits of life, it would seem to be the time to think about medical education in its relation to the public needs.

We have gone very far in making high standards, which have reduced the student classes by fully fifty per cent, and thereby the output of doctors has decreased proportionately. Scientific training

has largely shelved the mere practical, old-fashioned clinical methods which an intern year may in some degree compensate.

These things have been active in throwing obstructions in the way of the student of ordinary means and of ordinary minds, and have already pointed to the profession of medicine as one to be engaged in by men of special qualification and special training. The youth of meager resources in the way of money finds the cost of a medical education burdensome, and the schools themselves, which are not privately endowed or sufficiently supported by the State, find the cost of operation a constantly increasing problem of finance and adjustment.

It only needed the tragic experiment of the S. A. T. C. in the medical schools to add a knockout blow to the enthusiasm of teachers in medical schools. From the beginning managed by military authorities without proper regard to curriculum or college standards, abusing the schedule and study periods by forced military regulations which, though afterwards amended, finally broke down the morale of almost every medical student enrolled in a military army unit, its whole scheme has demonstrated the frequently observed better hindsight than foresight which has been characteristic of some of the plans and schemes evolved in our war experience. No matter how well it may have been intended, the S. A. T. C. for medical colleges almost everywhere successfully destroyed all attempt at sustained standards, regular teaching or real morale in the student body. At our institutions, as soon as the most welcome demobilization order became effective, the authorities of the schools, in sympathy with the student bodies, put the months of September, October, November and December in the discard and adjourned school to the first of January, in order that the student body and the faculties might be stabilized and ready for efficient work in the new year, even if it should take all of next summer to complete the regular courses.

The future of the medical profession in the United States needs stability to go forward. The public should now and hereafter appreciate the need of coöperation for a better concept of State medicine as it applies to the practice of medicine.

With the standardization of hospitals and their administration for the advancement of medical education as well as for the proletarian purposes usually fulfilled, some lines of advance will be opened up. The spirit of victory in the achievement of our recent

war experiences should spur all medical men to get the tread "which leads to enterprise."

There must be a systematic effort to encourage the youth of to-day to realize the wonderful opportunities in the study of medicine, and such vocational selection should be stimulated in the boys and girls who are yet in the high schools and who are coming on. The intelligent preparation for commencing the study of medicine means much in the year of the actual medical course. The whole plan of successful medical practice, from the point of State medicine, demands that these problems be worked out and their results demonstrated.

### HAPPY NEW YEAR!

There is every reason to believe that 1919 should prove a better year 'for practically everybody than the last few—if for no other reason than that the war is over.

First and foremost, the thought that the slaughter, the atrocities, the suffering, the privations "over there" have stopped, must lift an awful load from the souls of all who really think and feel.

Here we have a right to expect that the absence or scarcity of many things and the exorbitant prices will gradually diminish, no matter how slowly. Normal conditions, little by little, will be re-established and, as far as we are concerned, we shall not have to account to Uncle Sam for every sheet of paper we use.

According to the law of chances, we are not likely to have any outbreak comparable in morbidity or mortality like that of influenza we suffered last year.

Finally, **the boys are coming home**, the young boys and the older boys, the doctor boys as well as the others; and those whose boys do not come know they have not been called in vain and will await in peace the time when they can join them for eternity.

## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### LOCAL ANESTHESIA FOR OPERATIONS FOR GOITER.\*

By A. A. KELLER, M. D.

Adjunct Professor of Surgery, Loyola Post-Graduate School of Medicine; Visiting Surgeon, Charity Hospital, New Orleans.

The growing fear and dread of the general anesthetic and its many contra-indications, especially in goiter of the exophthalmic type of long standing, a previous attack of apoplexy, general tuberculosis, intra-thoracic goiters and those complicated with cardio-renal disease, and the ease with which these cases may be operated on under local, together with the growing demand of the rapidly learning layman that local rather than general anesthesia may be used, prompts me to read about it to-day.

The question of the patient's mental attitude must be given very careful consideration. Oftentimes it amounts simply to the fear of being hurt. This is not difficult to get around, particularly if the patient knows of other cases that have been successfully operated on under local anesthesia. Many times, however, there is an unconquerable dread of being conscious and knowing what is going on, which has nothing to do with the fear of pain. When this exists, nothing but a general anesthetic will suffice.

The development of various forms of anesthesia has not kept pace with the advancement of surgical technic. Generally speaking, there is about as much hazard to the patient from the administration of a general anesthetic as there is from the performance of a major operation itself in competent hands. This statement applies both to the immediate and remote effects of the anesthetic. Medical men have been so engrossed with matters of surgical technic that only too often the question of the anesthetic has been given scant consideration.

The secret of success in the use of local anesthesia is the avoidance of giving pain to the patient. This requires a careful and

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

painstaking technic, and demands time and patience on the part of the operator and extreme gentleness in the handling of tissues, and for this reason will never become popular with some surgeons. The mere injecting of an anesthetic solution into the skin along the line of incision will not do; nothing but the complete blocking of all the sensory nerves supplying the region will suffice. See that your patient is made perfectly comfortable on the table, as it is most essential that she be not restless. Have an unsterile nurse, or "moral anesthetist," to sit at the head of the table, screened from the operation, to talk to the patient and fan her if necessary. Assure the patient that the procedure will be painless, aiding, if necessary, with a preliminary dose of morphia. Do not fail to tell the patient when the first puncture is about to be made, as this restores confidence and makes for a satisfactory mental attitude. As small a thing as this at the beginning may mean success or complete failure in carrying out a satisfactory procedure. A fact to be well borne in mind is that the effect of the solution is not immediate, oftentimes requiring twenty to thirty minutes to permeate all structures, and a little time and gentle pressure over the area are necessary before the tissues are insensible to pain; so the incision should not be made immediately after injecting the skin, lest an unanesthetized area be entered and gives pain, thus causing throughout the operation that fear of pain which tends to make the patient restless and distracts the operator and questions the dependability of the particular analgesic in use.

**ANESTHESIA CLASSIFICATION.**—Infiltration anesthesia is the production of freedom from painful manipulation by saturating the tissues with the solution in the region to be operated upon—that is, anesthetizing terminal nerve filaments.

Conduction anesthesia means the interruption of sensation by injecting the nerve or nerve trunks that supply the area to be operated by injecting the solution into the nerve substance, its sheath, or immediately surrounding it. These two forms of injecting anesthesia are quite different, theoretically, but practically are similar, and both are used in my work; especially so is the infiltration method.

Very essential for surgery under local anesthesia is a thorough, definite knowledge of the regional anatomy and nerve supply and a knowledge of which structures require better infiltration. The skin needs much care, the sub-cuticular and fat little, muscle a medium

amount. This knowledge is hardly less important than gentleness and respect for tissues.

Going back to your anatomy, you will recall that all the nerves supplying the front and side of the lower part of the neck arise from the cervical plexus and emerge from the posterior border of the sternomastoid muscle at its midpoint, and for an inch and a half downward, the transverse cervical and the inner, middle and outer supra-clavicular nerves.

Braun blocks the posterior border of the muscle by deep, massive injections, then with a long, fine needle subcutaneous injections are made, blocking out a rhomboid figure, completely surrounding the area occupied by the goiter.

The assistant should see that the tray is well supplied with syringes that will work, a number of large and fine needles that are not worn from rust or dulled from overuse, knives that are sharp. These are absolutely essential, for, if tension or pressure is made in the use of improper instruments, pain is produced, and there is nothing so disturbing to the surgeon and patient as to be handicapped by the use of faulty instruments.

ANESTHETIC.—Novocain, which is easily sterilized, is the ideal, effectual non-toxic drug used in my local anesthesia operations. Some surgeons have used as much as fifteen grains at a time, with no untoward results, though it is rarely necessary to use more than three or four ounces of a one-fourth or one-half per cent solution. It does not inhibit healing, nor does it make the area more susceptible to infection.

A more recent local anesthetic, apothesine, introduced experimentally in 1916, used in same strength as novocain, made popular by the scarcity of novocain brought about by the war, very much inferior to novocain, is being used by a great many surgeons today. I have used it successfully doing other major operations, and expect to use it in goiter surgery.

It is not a wise plan to combine adrenalin with your local in doing thyroidectomies, for the field of operation is so greatly supplied with arterioles and capillaries that danger of post-operative hematoma is very great—a very unpleasant and distressing and unwelcome interference to the comfort of the patient and cosmetic effect of the operation—and a careful surgeon will never “close up” a thyroid field until he is absolutely certain every little bleeder has been clamped and tied.

Wolfer is credited with the earliest ligation of vessels for the relief of thyrotoxicosis, and those on whom the earliest symptoms are noticed, possibly before the eye symptoms are present, the ligation of vessels will undoubtedly arrest the disease. For bipolar, and vessel ligation particularly, is local anesthesia indicated, especially so in the large group of severe cases of hyperthyroidism with the secondary symptoms of dilated heart, fatty liver, soft spleen, diseased kidneys, ligation is of practical value, and local should be the anesthesia, for in these cases general anesthesia is exceedingly dangerous, the operation is one of very short duration and the shock following general anesthesia very much worse than the shock following the operation itself. This is a very simple undertaking under local, the thorough anesthesia of skin at a point over upper pole, anesthesia of fat and platysma, waiting with gentle pressure over anesthetized area for a few moments, a small incision down to muscle, massive infiltration of gland, exposure of upper pole, with isolation of superior thyroid artery, and ligation.

TECHNIC.—*Partial Lobectomy and Thyroidectomy*: The Kocher or transverse collar incision is the one of choice, for its many advantages, especially in women, where the glandular disturbance is so frequent, it permitting free exposure of the gland, drainage at the lowest possible point, and is easily hidden by a low collar or string of beads or LaValliere, and leaves no deformity to annoy her later on. We thoroughly anesthetize the skin along the line of incision, followed by the sub-cuticular and fat, then muscle infiltration anesthesia. The skin flap, down to muscle, is dissected upwards to a point level to the upper pole; all superficial bleeding vessels are clamped and tied. The sterno-mastoid muscles on each side are infiltrated with several massive injections of anesthesia to block the nerve supply, the 2-3-4 of the cervical plexus emerging from the posterior border. The sterno-mastoid on either side is dissected from the underlying tissues and retracted. During this stage the sterno-mastoid branches of the superior thyroid arteries, which are often of considerable size, will be ligated and divided. The anterior jugular veins are now seen, as they lie in the space of Burns, which, in a normal patient, are so small that they can hardly be discovered, are larger in these cases than the external jugular in a normal patient, are dissected free and divided between ligatures, and in this way we undoubtedly dispose of one of the sources of trouble in these cases, because it seems likely that the venous

stasis which is accomplished in the presence of these larger veins has something to do with the hyperthyroidism. The pretracheal muscles, sterno-hyoid, sterno-thyroid, omo-hyoid, often covered by layer of platysma, are well infiltrated and divided in median line as they cross the isthmus of the thyroid, and are carefully dissected laterally. It is at this stage that the dissection must be carefully carried out, for the muscles lie adjacent to the thin-walled superficial veins of the gland, which are very easily punctured and bleed profusely.

As a rule, it is necessary to divide the anterior muscle in only 10 per cent of thyroidectomies. It is when these muscles are unusually tense and the gland unusually large and cannot be delivered through the retracted edges, that we resort to section. When necessary, apply two large clamps 2 c. m. apart and cut between them. In this way the edges can be more easily sutured together after the gland is removed. The gland, now well exposed, is well infiltrated. Enucleation of gland, by elevating with index finger, left hand, and application of large curved clamps into capsule at base of gland, follows, care being exercised to grasp the superior and inferior thyroid arteries in your clamps, never cutting, unless it be between two clamps. The thyroid, very often adherent to trachea, is cut away from the trachea, having a number of clamps to stop bleeding points. After tying off all bleeding points and clamped vessels with plain catgut, carefully inspect the field, suture the severed anterior muscles with plain catgut, a drain of about ten twisted strands of silkworm-gut put in at lowest point of median line, fascia and fat of skin flap sutured with five or six tension catgut, interrupted sutures, and skin closed with fine plain No. 0 catgut sub-cuticular. The patient should be removed to his room with very little, if any, shock. None of the alarming, distressing after-effects of a general anesthetic; non-stimulating liquids freely. Drain removed in twenty-four hours; sitting up on third day, and usually leaves the hospital on the fifth day.

SUMMARY.—1. Remember that you are operating on a live patient.

2. The patient's life is not endangered by dosage sufficient to induce local anesthesia.

3. You should have a definite knowledge of the regional anatomy and nerve supply, and a knowledge of which structures require infiltration.

4. The general comfort of the patient after operation is much improved, because of lessened trauma to tissues.

5. It is absolutely essential that you have needles and syringes that will work, together with sharp instruments, for a dull knife or scissors tends to chew the tissues.

6. Keep your promise to your patient, for, if your first incision is painful, the effect on the patient is so demoralizing he is forever in fear of pain.

7. Convalescence is not complicated by the anesthetic, and is thereby shortened.

#### CASE REPORTS.

Reviewing the statistics of goiter surgery of the New Orleans Charity Hospital for the past five years, during which period of time it has been my good fortune to be on the staff of our chairman on section surgery, and to whose kindness I am indebted for the use of the material, there was a total of 149 operations for goiter. Of this number, 104 were performed under general and 45 under local anesthesia. Of these 45 operations under local anesthesia, 11 were vessel ligations, 2 bipolar ligations, 4 lobectomies, 4 complete thyroidectomies for exophthalmus, and 24 complete thyroidectomies for the simple cystic colloid goiter. A few vessel ligations were done under Schleich solution, two complete thyroidectomies for cystic goiter performed with apothesine, and the remaining number operated on with novocain.

#### DISCUSSION ON THE PAPER OF DR. KELLER.

**Dr. Isidore Cohn**, New Orleans: I have listened with a great deal of pleasure to Dr. Keller's paper, and there are two or three points in it that appeal to me. The secret of success, I believe, depended largely on preventing pain. Personally, I believe it depends largely on the confidence that the patient has in the operating surgeon primarily, or he would not let him operate without a general anesthetic. Having established the confidence of the patient in you, it makes the operation easier; but if you inspire the patient with the idea that you are going to hurt him a little, you will inject more of the local anesthetic. A point which is very often lost sight of in using the hypodermic syringe for local anesthesia is that we forget the key to success is intradermal injections, and not hypodermal. The sensory terminal filaments of the nerves are in the layers of the skin, and not under it. If you make injections in the skin, you can make your preliminary incision without trouble.

The essayist spoke of using apothesine, and said it is inferior to novocain. I used to hold to the use of novocain until the Germans beat us out of it and we can get no more, but I am grateful that I have been

using apothesine in the out-patient department of the Touro Infirmary for a year and a half. Over there we are doing almost every kind of operation with apothesine. In the ward service we have done hernias, removed fibroids, operated on carbuncles, removed lipomas, and almost anything else which comes within the field of local anesthesia, with one-half of 1 per cent apothesine, with no more discomfort to the patient than we have had from cocain, stovain, novocain or any of the balance of them. It possesses the distinct advantage that it can be sterilized easily by boiling and can be used. I have not yet found out how much it takes to poison a patient. It does not have the effect that stovain has, of producing a certain amount of sloughing of tissue. For our work, apothesine has been a great thing.

As to the question of bad cases in which the essayist thought that local anesthesia was particularly indicated, I will say that it was my good fortune three years ago to go through the wards of the Lakeside Hospital, Cleveland, with Dr. Crile on his morning rounds, and see him do ligation in these cases, so-called stealing, and he uses nitrous oxid gas combined with local anesthesia to overcome the psychic side. In these patients the slightest amount of excitement may increase the toxic effect.

Another point is the method of carrying out the process of local anesthesia in the thyroid. Instead of massive infiltration, in the few cases we have had, we have made a low intradermal injection and blocked out the nerves from the tip of the mastoid process in a backward direction along the posterior border of the trapezius down to the level of the acromio-clavicular articulation. In that way we have not been bothered with boggy tissues, with infiltration in front, and we have had no trouble with our results.

The last point I wish to make is in regard to the particular vessel to be ligated. I would like to call your attention to the point of how to get at the inferior thyroid without danger of injuring the recurrent laryngeal nerve. We all know that if we go between the sterno-hyoid muscle and thyroid to get at the inferior thyroid, the recurrent laryngeal nerve lies in that particular fascial plane. If we go between the sterno-hyoid and sterno-thyroid, we have the fascial plane separated from the recurrent laryngeal nerve, and there is less danger of injuring that particular nerve.

**Dr. E. Denegre Martin**, New Orleans: I want to corroborate what Dr. Cohn has said with reference to novocain and apothesine for local anesthesia. We have been using apothesine very freely for over a year, so much so that we are using it for everything, and I have been unable to see any difference between it and novocain. Apothesine is non-toxic, regardless of the amount you use. If anything, it probably takes a little longer to produce the anesthetic effect. So far as I am concerned, I don't care whether I get any novocain again as long as I can have apothesine.

The doctor called attention to the importance of blocking the nerves; as soon as we do that, local anesthesia will become more popular.

**Dr. J. M. Batchelor**, New Orleans: I have had a partial weakness for novocain, but from the little experience I have had with apothesine, if we delay operation somewhat, we will get good anesthesia.

I am very much pleased with Dr. Keller's paper on local anesthesia as applied to operations for goiter, because we know the chief danger of operating on cases of goiter, particularly in advanced cases, is shock and thyrotoxicosis immediately following operation. It is to be presumed

that blocking of the afferent impulse will prevent shock. That has been my experience in surgery of the thyroid under local anesthesia. For two years I have done no operation on the thyroid under a general anesthetic. I find local anesthesia, even without gas, to answer every purpose, and to be preferable.

**Dr. A. Keller**, New Orleans (closing): In some cases you may be called back to open up your wound on account of a hematoma, and this is annoying to the patient. It makes the effects of the operation unpleasant, and in such cases I find adrenalin is an admirable agent to use in connection with local anesthesia in very many operations, although I would not advise it in thyroid work.

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## EPIDEMIC MENINGITIS—WITH SPECIAL REFERENCE TO TYPES OF MENINGOCOCCI AND THE TRANS- MISSION OF THE DISEASE.\*

By CHARLES W. DUVAL, M. D., New Orleans.

The epidemic form of cerebrospinal meningitis is universally recognized as due to the microorganism known as the meningococcus of Weichelbaum. Moreover, extensive observations upon the disease have demonstrated that in whatever country it occurs the lesion is uniformly associated with the same exciting agent. While we have a variety of microbic excitants of meningitis, none but the meningococcus gives rise to the epidemic form.

We owe the discovery of the etiology to the Italian investigator, Celli, who in 1884 first observed the coccus in the meningeal exudate from fatal cases of the disease. However, not until 1887 was the coccus positively identified by Weichelbaum as the sole causal agent of this horrible malady to mankind.

Epidemic meningitis, or spotted fever, as the disease is sometimes called, has prevailed in our country sporadically and in epidemics since 1905. Furthermore, it may be said the disease is pandemic over the world, having in the past three years appeared in practically every European country. Undoubtedly the war is in a large part responsible for its spread and present-day universal distribution.

The disease is an old foe of the armed camp, having ravaged the armies from the earliest times we have any record of, and exacting a frightful toll. It soon made its appearance in the present European armies, and has already attacked our own in the various cantonments throughout the country.

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\* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1913.

As the disease is prone to spread from the armed camp to the civilian population, and particularly to our cities, I have thought it appropriate at this time to present the essential facts of our present knowledge of epidemic meningitis to the attention of the Louisiana State Medical Society, who, after all, are responsible for the health of our community. An intimate knowledge of the specific organism, its mode of transmission, detection, prevention and cure should be an essential part of the cerebral armamentarium of every physician if we are to control this parasitic menace to human life.

The meningococcus is unknown in nature outside the human host. It is spread directly and solely by one individual to another, and such persons have come to be known as carriers. These carriers, while harboring the meningococcus in their nasopharynx, are unaware of any danger they may be to themselves or to others with whom they come in contact. Thus, through the medium of the healthy human carrier, the meningococcus is disseminated, kept alive and propagated. The persistence in a locality of epidemic meningitis is due, not to active cases of the disease, but to the presence of the healthy human carriers who reside in the community, intermingling and moving about freely from place to place.

The meningococcus is harbored and propagated by some carriers for weeks, others for months, and still others for years, which fully explains the vicious circle that is established, since each carrier and each case of meningitis becomes potentially able to disseminate the meningococcus. To break up the circle, the carrier, above all, must be detected and isolated. Prior to the announcement of the English investigators, that the human carrier was the sole means of spread of the disease, we were at a loss to understand the sudden appearance of sporadic cases in a community heretofore free, or new cases in the same community, but having no connection with one another. Our recently-acquired knowledge of the mode of transmission makes this now quite clear.

The meningococcus always enters and leaves the host by way of the secretions from the nasopharynx. It is now established that the coccus, after a sojourn for a longer or shorter period upon the mucous membrane, passes directly back to the meninges via the lymphatics, or indirectly through the blood. Formerly it was thought the infective agent did not travel to the meninges by way of the circulation and that the septicemia and other extra-meningeal lesions seen in cases of epidemic meningitis were the expression of

metastasis. Recent work shows that it is not at all unusual to have a primary blood infection, and in some instances to have meningococcal infection without involvement. This knowledge is of great importance to us from the standpoint of serum treatment. For this reason it is advised, and should be made a routine practice, to administer the antitoxin intravenously as well as intra-spinally in all cases. Whether the meningococcus invades primarily the meninges or the circulation, there is every reason to believe that it sojourns for considerable time in the nasopharyngeal secretion prior to entering the body. On the mucous membrane it would seem to lead a truly saprophytic existence, since here it multiplies freely without exciting any response on the part of the host. At least, there is no evidence of a local inflammatory reaction at the multiplying site, or the development of antibodies detectable in the host serum. Further proof of a saprophytic existence for the meningococcus lies in the fact that carriers remain unaffected by specific serum and vaccinal therapy, the coccus being, as it were, on the outside and independent of the perspective host. The length of time the coccus remains and multiplies upon the nasal mucous membrane may be brief or long, which is tantamount to saying that every meningococcal infection is preceded by the "carrier" state. Since every case of meningitis develops out of a carrier, and we believe that few carriers ever contract the disease, how are the two statements reconciled?

The case that is to develop the infection undoubtedly has had a pre-meningitic stage of short duration in which the organism multiplies upon the mucous membrane of the nasopharynx, and during this brief period the case is in reality a "transient" carrier. On the other hand, if infection is not established early in the case of this type of carrier, the individual becomes what is termed a true or "chronic" carrier, and one who rarely becomes infected. Why the chronic carrier is refractory cannot be explained on the basis of there having been acquired an immunity during the carrier stage, for, in the absence of serological proof, it is demonstrated to the contrary. We can only assume that the human species is, after all, not highly susceptible to meningococcal invasion. In support of this, we have the fact that true, healthy carriers rarely contract the disease, and that they outnumber thirty to one the cases of meningitis developing in any area. It must be borne in mind, however, that the carrier is a danger to a wide and indefinite number of sus-

ceptible persons; and furthermore, because of his healthy state, he is always an unsuspected menace in the community.

Whether it is a true or transient carrier of the meningococcus, the mechanism of dissemination is the same, and consist in the ejection of the nasal secretion into the outside world. Coughing, sneezing, hawking and spitting are the means through which the infectious material is transferred to others who, if near, inhale the finely suspended germ-laden particles of secretion.

The cycle of events which leads to meningococcal infection is now perfectly clear. The carrier, mingling with persons, creates the infection in a number of those susceptible, and increases the number of carriers in those more resistant. Expressed otherwise, the carrier introduced into a group of persons causes a variable number of these to become infected through inhaling his nasal pharyngeal secretion, and a larger number to be converted into transient and chronic carriers of the meningococcus. Hence, the number of carriers produced always exceeds the cases of infection which develop.

It would seem that when the cerebrospinal fever breaks out in a community previously free from the disease the bacteriologist, by following up the clue afforded by the type of coccus present in those first ill, can, by examining the "contacts," and also those who are carriers of this type, identify a large proportion of the carriers of the particular coccus operating. On the other hand, in communities where epidemic meningitis has been prevalent for some time and the carrier rate is relatively high, it would be well to ascertain the community carrier rate as well as the type rate of the local population. In this way the physician will be in a position to form an opinion of the prospect of checking the spread of the disease by isolating the carriers of the type or types locally active.

With regard to types or varieties of the meningococcus, it is now definitely established there are at least four, and possibly others which have not as yet been recognized. Most interesting in this connection is that all types thus far identified are capable of giving rise to epidemic meningitis of equal intensity and degree of severity of the lesion. Of more interest still is the knowledge we now possess that these meningococcal types are serologically not related. The English workers have given us abundant proof that these heretofore regarded "variants" of one species are not the case, but that they represent separate and distinct species. Therefore it is misleading to speak of types or variants, for in reality they are different

microorganisms. from the standpoint of serum-therapy, this knowledge is of the greatest importance, since specific curative measures depend in no small degree upon the recognition of the type-species of infection.

Prior to our knowledge of distinct serological differences for the meningococcus we were at a loss to explain the failure with serum in the treatment of cases in one locality and the good results obtained with the same serum in cases of another locality. These inexplicable discrepancies with antitoxin are now quite readily understood and explained in the light of our recent discovery of distinct species for the meningococcus. The antitoxin produced by any one of the so-called types is only of value in the treatment of the infection caused by that particular meningococcus.

What was formerly thought to be a polyvalent serum, because produced with a number of meningococcal cultures that had been isolated from widely different sources, has in most instances turned out to be nothing more than monovalent serum, because all the cultures used were discovered later to be the same type. While much of the serum on the open market is in this category, I believe that every effort is being made by all producers of commercial antitoxin to correct the unintentional mistake.

From what has been said of meningococci, you will agree with me that it is essential, in the treatment of cerebrospinal fever, to first determine in each case the type of infecting organism. This is readily accomplished, and in a remarkably short period of time, by any one skilled in bacteriological methods. Having determined the type, give preferably the monovalent or homologous serum, both intraspinally and intravenously. Far better results are obtained where the serum is administered into the two systems simultaneously.

In conclusion, let me say just a word relative to the mode of transmission of the disease. The healthy carrier is the chief, if not the sole, vehicle of cerebrospinal fever. Therefore, the carrier must be detected and isolated until free from the coccus, which he harbors and propagates in the nasal and pharyngeal secretions. At present, regrettable as it is true, there is no suitable method of rapidly freeing such a carrier of his meningococcus, and until such is discovered we cannot adequately limit the spread of the disease.

#### DISCUSSION ON THE PAPER OF DR. DUVAL.

**Dr. George S. Bel**, New Orleans: In listening to Dr. Duval's paper,

which is probably one of the most scientific we have had presented before the Association, it brought out some very important facts and new facts about meningitis, and he shows that we need not worry about the transmission of the disease except from the human being or the human host. The danger from meningitis, as Prof. Duval brought out just now, is not so much from an individual who is suffering from an acute attack himself, because he is isolated—he is already suspected, and therefore all necessary precautions are taken—as it is when such an individual becomes convalescent and moves around; then he is somewhat of a menace to others. Of course, we realize that an individual who is suffering from an acute meningitis will be somewhat of a menace to the attending physician or nurse or nurses. It is the chronic carrier, because of his peripatetic movements, constantly moving from place to place—the individual who has meningitis organisms in his nasopharyngeal spaces, coming from an unsuspected locality, of a cantonment, for instance, where there are congregated young, strong individuals, who are susceptible at that age to the disease, more so than at any other time, who becomes an entire menace to others. No one suspects that this particular individual is carrying the meningococcus, of whatever species he may be, or whichever term Dr. Duval sees fit to use. It is such individuals that give us all our trouble. Unquestionably we find cases of meningitis breaking out here and there, and, where there have not been any cases in the community, there it is we have this etiological factor in the production of this most deplorable disease, namely, cerebrospinal meningitis. It has occurred to me, and I presume it has to others, that the government authorities and other authorities should advocate vaccination against cerebrospinal meningitis in cantonments and other places, just as they do against typhoid fever. I would like to ask Dr. Duval if that would be reasonable, and what his idea is about prevention in the form of vaccination?

We all know, and Dr. Duval made that plain to me to-night, that we have, in the large majority of cases of cerebrospinal meningitis, bacteriemia, and I believe the proportion is about 70 per cent. If the organisms are in the free circulation as well as spinal fluid and nasopharynx, the idea of administering antitoxin directly or simultaneously into the veins while we are administering it in the spinal canal, seems scientific to me, and I believe Dr. Duval hit the nail on the head when he advised that method of administration. If bacteriology is a science, and we all know to-day it is one of the most important sciences in medicine, and it touches the individual who is suffering from a bacteriemia or a septicemia, and the organisms are in the free circulation, why not meet it in that way directly as well as by the former method, through intraspinal injections only? While it is also best to administer a specific serum for a specific organism, if you can isolate the specific microorganism, and we have an antitoxin for it, monovalent is unquestionably the only type of administration. But if we are in a position where we cannot have a scientific bacteriological examination made by an individual who is competent in that line, or we have not the apparatus and so on, I would advocate the administration of a polyvalent serum now made from the organisms that have been described to-night. I think Dr. Flexner has a serum made of those various microorganisms which Prof. Duval spoke of, and, if that is the case, why not administer a hyperserum when we cannot determine for want of proper knowledge the particular organism or cannot secure the services of a bacteriologist?

What I am driving at is this: if we are practicing in some remote place where it is impossible to have the help of a bacteriologist, why not administer a polyvalent serum made from the Flexner type? The unfortunate condition has been, so far as my experience goes in the treatment of cerebrospinal meningitis, that we do not know the various organisms concerned as etiological factors in the production of the disease, and we have all too frequently administered an antitoxin in a given case, not knowing how it was going to act. It is a well-known fact that the antitoxins we have been using have been woefully deficient in antitoxin; therefore, antitoxin for cerebrospinal meningitis cases has not been effective in very many instances. Heretofore we have been giving serum that was lacking in antitoxin. I would like to ask Dr. Duval if that has not been his experience or the experience of the government, with which he is connected, and the Rockefeller Institute, and tell us what they are doing with that method of treatment?

I would also like to ask Dr. Duval how soon can we recognize the various strains of organisms?

I should judge, from my knowledge of the subject, that we would do as we do in pneumonia—test out the organism—and I would like Dr. Duval to kindly tell me how soon it can be done. A great deal will depend upon that.

Finally, I wish to say that this has been one of the most instructive papers I have heard at this session of the Society. I have been highly edified by it. The paper is eminently scientific and will be of great benefit to us all, both individually and collectively, and I want to thank Dr. Duval personally for presenting it.

**Dr. Frank R. Gomila, New Orleans:** The question of carriers in the City of New Orleans has certainly been one in which we have been vitally interested, as we have had in the cantonments and surrounding sections sixteen cases, and in several places in the city where there were cases; all contacts were examined, and in one home there were eight carriers that we found, besides a case that was afflicted with the disease. Strange to say, no other case developed in this particular family, considering the particular surroundings that were there. They were the most abominable conditions for meningitis to develop.

The State Board of Health has, in conjunction with the government, done some work in Algiers at the Naval Station. There was one case that developed there, and, out of 800 men who were quartered there, there were several found to be carriers; they were isolated, and there were no further cases that developed. There was another family in which a case of meningitis existed; there were three other people in the house that were carriers, and none of the carriers developed the disease. We were unable to trace any of the cases to any particular source. The method used was to endeavor to get every possible person who has come in contact with a person suffering with the disease, and we have been unable to attribute any case directly to any one particular individual. We have had several cases that were sent home from the draft from the Great Lakes, Illinois, training camp, and the men have reported to the office, and I find it is quite strange that the government should have sent these men away from the cantonment into our midst, to be a bugbear among the population. I addressed a communication to the Surgeon General and asked him why we were not notified of the existing conditions, and I have since found out that they have been sending cases home that proved avirulent—that is, the meningococcus they carried was

supposed to be avirulent, but that is not a definitely settled point. It is possible the meningococcus may be avirulent right now and several days afterwards it may become very virulent; and I want to say that the situation in New Orleans has been handled very nicely along those particular lines.

**Dr. S. M. D. Clark**, New Orleans: May I ask Dr. Duval would there be any good reason for the attendant or the doctor or nurse to wear these little gauze masks that are being advocated in our cantonment hospitals in pneumonia? They seem to believe that they have minimized infection from that standpoint. It would be interesting to know, from a bacteriological standpoint, whether these masks can be used effectively against the meningococcus or not. If they have any virtue from a practical standpoint, I think we should know it.

A second question I would like to ask him is to tell us the method he has used in destroying the meningococcus in the carriers.

**Dr. C. W. Duval**, New Orleans (closing): In answer to Dr. Bel, I will say that vaccination in the prevention of meningococcus infection is something that the English have already undertaken, and I daresay before long this country will, in connection with its army men or draft men, try it in the various cantonments. There is every reason to believe that immunity can be had in an individual, whether he is susceptible or not, and a very high degree of immunity, and the English believe this immunity can be raised to the point where it will last for a good many months, so that we can really hope for some results from vaccine-therapy as a preventive of the disease the same as we get now in typhoid vaccination against typhoid. You will all recall that when typhoid vaccine first came out we could get immunity to last for six or eight weeks; then it was increased to several months. Now we can establish an immunity in the individual that will last for several years. The same, I daresay, will be had for meningitis. A vaccine—and this answers Dr. Clark's question—has been used a great deal to eliminate the coccus from the carrier, but without any success. It has been an absolute failure, and we explain that on this ground. As I stated in the paper, the meningococcus in the carrier is not actually within the host; it is in the secretions of the nasopharynx; it is living there as a saprophyte. There is every reason to believe, or rather there is good proof to believe, that is so, because we fail to get any antibody reaction on part of the serum of that individual, and there is no inflammatory reaction at the site where the meningococci are propagated or multiplied, so that the organism is not in the carrier. It is on the outside, and anything you may put into the circulation or into the system that is an anti-substance is going to have no effect. It is very much like trying to wash the dirt off outside of a window by rubbing it on the inside. That explains why vaccine or serum therapy has been of no value in ridding the carrier of the coccus. But certainly vaccine-therapy, to prevent the occurrence of the disease, is going to come into use, and, to repeat what I have already said, I think we will find that will be done extensively in this country when the fall comes around. We do not expect much meningitis during the summer months, but in the fall and winter and early spring we can look for it again, and I believe lots of it.

As to the potency of antitoxin, it is quite true that a great deal of the commercial antitoxin that is being used is of very low potency. Even if it is made up now with these different species that I described, the four species of the English or three species of the American, it is low in potency. It is not very strong in neutralizing the autolytic sub-

stance, and we have no way of standardization, such as we have for antitoxins in diphtheria and tetanus. We determine the potency of the anti-meningococcic serum by the agglutination reaction. Dr. Flexner states that a potent serum should agglutinate the homologous coccus in a dilution of 1 to 2,000. I had occasion to test some of the commercial antitoxin a month or two back at Beauregard for the government, and found it would agglutinate the homologous coccus in a dilution of more than 1 to 50 or 1 to 60. On that basis, it is a poor serum in potency. We must bear in mind that a serum or antitoxin may be poor in agglutinability or power to agglutinate the organism and still be quite a good antitoxin. It may be a potent antitoxin. When the substance is injected into an animal for the purpose of raising the immunity in that animal, various antibodies are developed, neutralizing the antibodies or destroying the antibodies, agglutinins and precipitans, and so forth. They are not developed equally or to the same degree. You may have the agglutinations develop very rapidly, you get a high curve, and your antitoxin or lysins develop very slowly and give you a low curve. The agglutination then is no index to the potency of any antitoxin, so it is a mighty poor way we have at present of standardizing anti-meningococcic serum on this agglutination test.

Dr. Bel also asked how soon can we recognize the type. We can recognize the type extremely early in the disease by doing an agglutination reaction, or the same reaction as we do for typhoid. The agglutinations appear quite early in meningitis cases. In two or three days the agglutinations are quite strong and you can detect them by the agglutination test or agglutination reaction. The way most of them are doing now is to take the blood from a case and test it with the various strains, or four or five species. If there is no cross-reaction, the reaction which we get with a culture tells us right off that that particular culture is the one infecting the individual case. There is no relation between these strains that we have and the pneumococcus strain or between the dysentery strain. There we have true types, with one species, but with meningitis they are in no way related serologically. So, by taking blood and testing it against a stock culture of meningococcus, we can determine the particular type that is infecting. Let me mention another way. We can isolate the organism very quickly from either the blood or the cerebrospinal fluid or from the nasopharynx. In quite a number of cases we must bear in mind that the cerebrospinal fluid at first is clear, and no organisms are demonstrable microscopically, and often cultures fail, but the organism is in the nasopharynx, and the same organism in the nasopharynx is in the cerebrospinal fluid.

It is interesting to note that we have never run across a case of meningitis that has two or more of these meningococcic types. It is always one strain. There is no mixed infection, in other words, of the meningococcus. By using a culture that is sure to be in the nasopharynx—and it is there in enormous numbers in all cases of meningitis—you can quickly isolate and agglutinate with known sera and determine the type.

In answer to Dr. Gomila, I would like to speak of something that was very interesting to me—a survey or determination of carriers in the community. Dr. Flexner was down here not long ago and suggested to me that it would be an excellent thing to make a survey of this community of the City of New Orleans to determine in a community where we might say we have not meningitis. We have the ordinary sporadic case; we have not the epidemic type, and have not had, but we thought

we would like to determine the percentage of carriers we have in our midst—that is, the doubtful type. It requires a lot of workers and requires money, both of which are scarce at this particular time. A doctor, who is a very good friend of mine, when he went back from here, stopped off at Washington at the Surgeon General's office and took the matter up with Col. Russell, and I have since had letters from the government to begin as soon as possible a survey of this community. The government is seeking to have a survey made of various communities all over the country this summer, especially in the big cities near cantonments. It is an excellent thing, and it should be done. It is the only way we can do anything with meningitis infection. I am hoping that in our graduating class this year we may have a few that will volunteer to help out with this work, with this survey of this city for meningitis carriers. Perhaps Dr. Gomila and others in his department will lend us a hand. I am sure he will.

Dr. Clark spoke about wearing masks. I think that is an excellent idea. Last August I was called in consultation in a case in a neighboring State and it was a very virulent case. I told the doctors there in attendance to use masks. I used a mask myself. I think it is well to use a mask or plug the nose with cotton, and then use something over the mouth, either saturated in some antiseptic like bichloride or other agent, but not strong enough to hurt the nasal mucous membrane or the lips, and you will certainly prevent yourself from becoming a carrier. If you are within ten feet of any one who is a carrier or a case with the disease, you are going to inhale the finely divided particles of secretion from that carrier or from that case. The room in which there is one sick with meningitis is saturated with meningococci. There is no question about it, and it is well for every attendant, the nurse or physician in a case of meningitis to protect the face, nose and the mouth against the organism, not only for their own protection, but for the people, especially for physicians. The physician becomes a carrier and does not know it. He is unprotected and unsuspected, and many people who are in any way susceptible when they once get this secretion will contract meningitis.

In answer to Dr. Clark's last question, and also in answer to Dr. Bel's question as to how the organism is destroyed, I spoke of it in the last paragraph of my paper. There is no adequate way of getting rid of the coccus in the carrier. The saprophyte lives on the outside, so that nothing in the way of specific treatment, serum or vaccine, does any good. There are those who claim that sprays of dichloramin-T and Dobell's solution are more or less effective, but, while they do good, they do not entirely rid the individual of his meningococcus. It is explained on this ground, that so few of these antiseptic sprays reach all parts of the ethmoidal sinuses. In other words, there are anatomical difficulties in the way of antiseptics getting to the meningococcus, which tucks itself away in these remote crevices so that it cannot be reached. I dare say in the near future we will have something that will rid the carrier of the meningococcus, and it is a serious thing, because, as the English have pointed out to us, an individual may be a carrier for over a year. They have had a case they have followed from day to day, and there have been carriers for more than a year and a half. What are you going to do with such individuals, who are as bad as Typhoid Mary of New York City? There should be some means to isolate carriers and keep such individuals under restraint or confine them in some way in order to get rid of the carriers.

## PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE

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### DIAGNOSTIC METHOD, TREATMENT AND PROPHYLAXIS OF MALARIA AS CONDUCTED IN THE SANITATION OF BRIONI, ISTRIE (AUSTRIA), IN 1899 TO 1902.

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#### INTRODUCTION.

The beautiful Island of Brioni is the most important of the group of twelve islands in the Adriatic Sea, off the west coast of Istria, from which it is separated by the Canal Di Fasana. The island belongs to Austria and is approximately in latitude  $44.53'$  N.; longitude  $13^{\circ} 52'$  E., southeast of Venice, south of Trieste, and a few miles northwest of Pola, almost opposite to Fort Barbariga.

Brioni seems to have been a very important province of the Roman Empire and Venice; the ruins still to be seen show vestiges of the Roman civilization, and the island probably served as a landing place for the Roman legions and as an important commercial center between Rome and the East. There are found in the island extensive quarries, which have been worked for centuries and have supplied material not only for the palaces and bridges of Venice and the whole Adriatic coast, but in later times also for Vienna and Berlin.

Little is known of Brioni during the period of the Middle Ages, but it has been suggested that the decline of the Greek and subsequently of the Roman civilizations was due to an epidemic of malaria and other parasitic and tropical diseases imported by the legions upon their return from the Orient, and it is not improbable that the same fate befell the island. Proof of this is not lacking, as it is known that Brioni was for many centuries uninhabitable and was a "no man's land" because of the prevalence of malaria.

During the early part of 1800, though Brioni belonged to a noble family of Italy, according to traditions, it became a dependency of Portugal, when a noble Portuguese inherited it by marriage to

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the daughter of the Italian gentleman. It is said that the new owner made unsuccessful attempts to cultivate the land and to populate the island, and that, after years of disappointment, finally gave up all hope and decided to sell the island, but found no purchaser. Malaria became so prevalent in Brioni, and the disease so grave at the time, that the island was commonly known under the name "Isola de la Morte" (Island of the Dead).

With the advent of the Austro-Italian War, Brioni became a province of Austria in 1866, which marked the beginning of the new developments on the island. Several years after, Brioni was purchased by a Swiss gentleman for the small sum, it is said, of about 20,000 gulden (\$10,000), and the new owner succeeded, after several years of work, in making improvements in the place to the extent of cultivating grapes and settling a small colony; but in time, like his predecessor, because of the prevalence of malaria, he became discouraged in the enterprise. It is stated that of twelve men who attempted to work the land, all but one died of malaria. At the time I was in Brioni this survivor was employed as a mail-carrier in the place.

About 1880, Herr General Director Paul Kuperweisser, a gentleman of means and of indefatigable energy and enterprise, purchased Brioni for a sum between 40,000 and 80,000 gulden (\$20,000 to \$40,000). With a keen foresight into the prospective future of the island, Herr Kuperweisser, realizing the sanitation of the place as the first and most essential thing, without loss of time began an energetic campaign against malaria in Brioni. This consisted chiefly in the application of the means known at the time, namely, the treatment of infected persons with quinin and attention to drainage. Through these means he succeeded in a few years in building up a colony of about five hundred inhabitants, erecting a small hotel, several other buildings, and beginning the cultivation of grapes, as well as starting other agricultural enterprises. But the sanitation of Brioni at this stage may be said merely to have been begun.

The discoveries of Ross, Grassi, and the observations of Koch in Africa, all paved the way for the better sanitation of Brioni, and Herr Kuperweisser applied for a commission from the Gesundheitsamt of Vienna to conduct a campaign against malaria in Brioni. The Gesundheitsamt of Vienna reported the petition to the Königliche Institut für Infections Krankheiten, now the Koch

Institute of Berlin, and in 1899 Koch took charge of the sanitation of Brioni.

The first expedition was composed of Prof. Koch, Prof. Paul Frosch and Prof. Elsner. The work of the summer consisted chiefly in the routine of blood examination of all persons in Brioni for the presence of malaria parasites, the energetic treatment with quinin and quinin prophylaxis of all infected cases. The result was satisfactory, and it was found possible to reduce the new cases of malaria in Brioni by about 50 per cent in the first year's work.

In 1901 the writer, desiring to undertake special studies on malaria and tropical diseases, went to Berlin in March and applied as a volunteer worker to the Koch Institute. The abundance of material which Koch had recently brought from Africa, and the courteous reception and personal interest shown him by Professors Koch and Frosch, chief of the scientific department of the institute, soon enabled the writer to familiarize himself with the subject.

In the beginning of May, knowing that a second expedition to Brioni was being organized, I applied for the opportunity to accompany it. The expedition was composed of Prof. Frosch, Prof. Elsner and myself. The work of the summer was the same as the previous year, and, in addition, the routine blood examination of all the inhabitants, and the treatment with quinin of all infected persons and all malarial carriers—that is, all chronic cases of malaria in whose blood the gametes of the parasite was found were quarantined or eliminated from the island; also, as mosquitoes were very abundant in the island, a routine examination of a great number of adult anopheles was conducted, among which some were found to be infected.

The result of the second summer's work was very satisfactory. Malaria was greatly reduced, but still some new cases developed during the season. We returned to Berlin in October, where the routine blood examination was continued through the winter.

A third expedition in 1902 was placed in charge of the writer, who arrived in Brioni at the beginning of April and remained on the island until the beginning of October. During this summer, in addition to the regulations introduced during the previous summer, attention was paid to the destruction of mosquitoes in the adult and larval stages, as well as to the protection of the inhabitants against the bites of mosquitoes, by appropriate screening of windows and doors. Other measures, as outlined below, were systematically fol-

lowed, with the result that not a single new case of malaria occurred during the summer, and Brioni was officially declared to be free from malaria, and has remained so since 1902.

The economic importance of the sanitation of Brioni offers the most impressive example of what can be accomplished in other tropical countries by the proper and systematic application of modern measures in the prophylaxis of tropical and parasitic diseases. Brioni at the present time is the most beautiful garden of the Adriatic Sea. The value of the island, with the eradication of malaria, increased, not by the hundred, but by the thousand per cent. From \$40,000, which Herr Kupperweisser paid for Brioni in 1901, I was told the value increased to more than \$250,000, and \$1,000,000 in 1902, when it was declared malaria-free. Since the year 1902 the agricultural development and embellishment of Brioni have been so marvelous that, at present, luxurious private residences, villas and castles of the royal and aristocratic families of Austria ornament the island. Brioni at present, it may be said, has no rival; not even Ostend equals it as a summer resort, and competes in supremacy only with its Adriatic neighbor, romantic Venice.

How this classic work of the sanitation of a tropical country was accomplished will be described below, with special references to the details concerning the diagnosis, treatment and prophylaxis of malaria.

#### DIAGNOSIS OF MALARIA.

The characteristic manifestation of a typical malarial infection, which appears with a sudden attack, consisting of a chill, fever and sweating, followed by a quiescent or afebrile stage, and the re-appearance at intervals of the same type of attacks with a remarkable periodicity, made a basis for the recognition of this disease by Hippocrates. Furthermore, the fact that while in some cases these attacks occurred every forty-eight hours, in others every seventy-two hours, while in still others, though these attacks were repeated every forty-eight hours, their course was protracted or irregular, led Hippocrates to differentiate the three types of malarial fever, namely, tertian, quartan and subtertian. (Figs. 1, 2, 3 and 4.)

This classification being chiefly based upon acute cases, during the first weeks of the infection, when the periodical attacks are apt to be more regular, naturally failed to include a certain group of atypical chronic cases of malaria which commonly may not present appreciable subjective or objective symptoms.

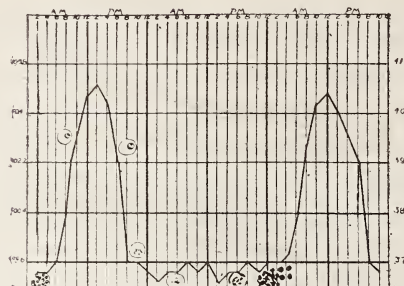


FIG. 1—TERTIAN MALARIA FEVER, SHOWING THE DIFFERENT DEVELOPMENTAL FORMS OF THE MALARIAL PARASITE IN CORRESPONDENCE WITH THE VARIOUS PERIODS OF THE ATTACK.

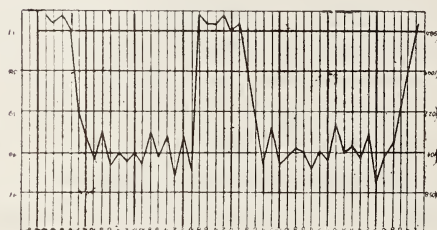


FIG. 2—TEMPERATURE CHART OF DOUBLE TERTIAN MALARIA.

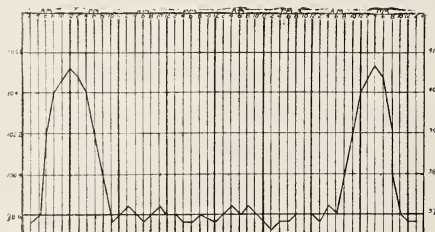


FIG. 3—TEMPERATURE CHART OF QUARTAN MALARIA.

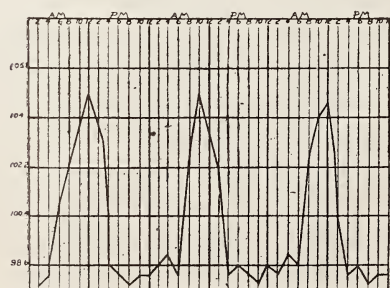


FIG. 4—TEMPERATURE CHART OF SUBTERTIAN MALARIA.

Of great importance in the recognition of these ayptical cases, and the diagnosis of malaria in general, was the importation of quinin into Europe in the sixteenth century, because this drug, being a specific against the malarial parasite, served as a valuable means in the differentiation of malaria from allied diseases. But there again arose another difficulty, when it was found that quinin failed to act against certain forms of the disease. It is now known that, while quinin is effective against the asexual forms of the malaria parasite (trophozoite) common to the early stage of the disease, it has no action against the sexual forms (gametes) characteristic of chronic malaria.

The last link in the diagnostic chain in malaria was the discovery of the parasite in the circulating blood by Laveran in 1880, and this important discovery has not only greatly simplified the diagnosis of the disease, but it has been of great importance in the prophylaxis of malaria, for it is the only means of detecting some chronic cases in which the blood shows the sexual forms of the parasite (gametes), which infect the mosquitoes. The technic is as follows:

- (1) Prepare a thin, dry blood preparation on a slide or cover glass; dry and fix in equal parts of alcohol and ether for one to two minutes.

- (2) Stain with diluted borax-methylene-blue for two or three minutes.

- (3) Wash freely in running water for a few seconds. Dry and examine under the oil immersion lens of the microscope.

The malarial parasite appears stained light blue and the erythrocytes pale green. Romanowsky, Wright, Giemsa or any other polychrome stain may be used and, though they give beautifully contrasting preparations, the use of this staining may be said to be of no practical advantage.

As in chronic cases of malaria the parasite is often present in the blood in such small numbers that it may not be found in the small amount of blood usually examined, it is recommended that larger quantities of blood be used by concentration. Two methods, the one recently recommended by Bass and the other used by the author, may be employed for such purposes with good results.

*The Author's Method:* Collect about 0.1 c. c. of patient's blood drawn from the finger in a narrow test-tube containing about 1 c. c. to 2 c. c. of a 1 per cent acetic acid solution and gently shake the mixture for from one to three minutes, until complete hemolysis

occurs; (2) centrifugalize from ten to fifteen minutes and, by carefully tilting the tube, pour out the liquid. The sediment remains at the bottom of the tube; (3) collect the sediment with a pipette, make slides of coverglass preparations, dry and fix in equal parts of alcohol and ether for one to two minutes; (4) pour out the alcohol and ether, dry with filter paper, stain with diluted borax-methylene-blue for from two to three minutes, wash freely in running water, dry and examine under the oil immersion of the microscope. The malaria parasite appears light blue among the greenish stained detritus of erythrocytes. The leucocytes are stained deep blue.

This method is especially useful for detecting the gamete forms, and the author has used it with advantage in the diagnosis of malarial carriers. With sufficient experience and careful technic, it is not difficult to detect any of the forms of the malarial parasite which may be found in the blood. (Fig. 5.)



FIG. 5—SEMILUNAR BODIES OR GAMETES OF MALARIA PARASITES (SUBTERTIAN).  
BLOOD PREPARATION MADE BY AUTHOR'S ACETIC ACID  
CONCENTRATION METHOD.

*Bass Method:* (1) Collect 0.5-1 c. c. or more of the patient's blood, drawn from the finger into a narrow test-tube containing an equal amount of an isotonic solution; mix both liquids and centrifugalize for ten to twenty minutes. The parasitized red blood cells and the free malarial parasite (gametes of subtertian, etc.) being lighter than the rest of the erythrocytes, will rise to the upper layer of cells; (2) carefully remove the supernatant liquid and collect in a pipette the upper layer commonly known as the "cream

of the blood"; (3) make dry spreads on slides or coverglass preparations with the material, stain it by Wright's method and examine under microscope.

A more concentrated preparation may be obtained by a further centrifugalization of the material in capillary tubes.

#### TREATMENT OF MALARIA.

The common knowledge that quinin is a specific against malaria has led the medical profession in general and the laity in **particular** not only to the indiscriminate use of this drug, but also to regard it as the last and only measure in the treatment of the disease. Koch held the opinion that quinin was the only means necessary for the treatment, prophylaxis and the eradication of malaria from a community, and advocated, in 1899, the use of this drug, to the exclusion of all other prophylactic measures, for the sanitation of Brioni. It was found, after the work of the first year, thanks to the recent discovery of Schaudinn, Ross and Grassi, that, in addition to quinin, prophylactic regulations must be taken into consideration to accomplish that end.

That quinin is a specific against malaria admits of no doubt, but like, with other specifics, it is the proper use, and not the abuse, of the drug which cures the disease. In the proper and rational administration of quinin the following points should be taken into consideration: (1) The preparation of quinin used; (2) mode of administration; (3) dosage; (4) time of administration; (5) duration of treatment.

(1) *Kind of Quinin*: Generally it may be said that the sulphate of quinin should be preferred for administration by mouth, and quinin bimuriaticum for hypodermic injections.

(2) *Mode of Administration*: As a routine procedure, quinin should be given by mouth, the drug being previously dissolved in diluted hydrochloric acid. The administration of quinin in the forms of pills, capsules or cachets, etc., is contraindicated, as they not uncommonly pass through the digestive tract undissolved, and besides, since this alkaloid is chiefly absorbed in the stomach, a capsule or pill may readily pass to the small intestine undissolved. For the same reason, in the treatment of the acute stage of malaria and in the subsequent treatment or as a prophylaxis of the disease, as outlined below, it is preferable to give the quinin on an empty stomach if possible, about four or five hours after a meal, in the

evening before retiring, or in the morning before breakfast, because, under such conditions, quinin is more rapidly absorbed in this organ.

Hypodermic injections, when indicated, are to be preferred to intravenous injections, the latter being used only in emergency, in very severe and grave cases. The hypodermic injection is especially useful in those cases in which the administration by the mouth gives rise to nausea and vomiting, or to diarrhea, or when these complications accompany the disease, as in "bilious remittent fever," etc.

( ) *The Proper Dose of Quinin:* For an adult, no less than fifteen grains (one gram) should be given for a single dose. Twenty, or even thirty, grains may also be given in severe or grave cases of subtertian, when this dose is well borne by the patient. For a child from one to ten or fifteen years old, one to ten or fifteen grains, respectively, are given—that is, one grain for each year. The use of small doses, such as two grains repeated at intervals, commonly prescribed for adults, is contraindicated, for the reason given below.

(4) *Time of Administration of Quinin:* One of the most important points to be considered in the successful treatment of malaria is the time at which quinin should be given. Based on our knowledge concerning the asexual cycle of the malaria parasite in the body, and knowing that the sporulation stage corresponds to the chill, the entrance of the merozoites in the erythrocytes to the febrile stage, which, because of the fact that not all the parasites sporulate at the same time, the period may last for about four to eight hours in tertian and quartan and a longer time in subtertian; that the fall in temperature or crisis corresponds to the early growth of the trophozoite stage; that the febrile period, which lasts forty to forty-four hours in tertian, sixty-four to sixty-eight hours in quartan and twelve hours or less to twenty-four hours longer in subtertian, during which time the trophozoites grow to a schizont, when sporulation again occurs and the cycle is repeated. This clearly shows that the clinical manifestations of a malarial attack is controlled or corresponds to the different phases of the asexual cycle of the malaria parasite in our body, and for practical purposes this may be divided into four stages, namely: (1) Chill-sporulation; (2) fever—entrance of merozoites into the erythrocytes; (3) crisis—beginning growth of the trophozoite; (4) afebrile period—further growth of trophozoite up to the schizont stage.

With this point in, it is reasonable to assume that *the most favorable time for the administration of quinin is during the third stage, or the crisis, just when the temperature begins to fall.* Among other reasons for the administration at this stage two, which are the most important, may be given (1) The parasite at this stage is very young, and consequently is easily destroyed by the drug; (2) at this stage, when the parasite begins its growth, and its metabolic activity is at its highest, it is only natural to assume that during this period of rapid growth it is more apt to take a larger amount of quinin than when it grows older and becomes quiescent.

This biologic fact is manifested in all forms of life and explains, for instance why a child proportionately consumes ten times more food than an adult, and likewise is more susceptible to the action of drugs, or which narcotics may be given as an example.

As the parasite grows older, therefore, the less susceptible it becomes to the action of quinin, until it reaches the schizont stage, when, like the gametes, it may be said to be refractory to the drug.

As for the sporulation stage, this, likewise, may be said to be refractory to the drug, because the merozoites, as readily understood, merely represent a quiescent stage between the schizont and young trophozoite (plasmodium) stages. During this period the merozoite enters the erythrocytes and remains dormant for some time before it becomes adapted to the new environment and begins to grow.

The reason why the malarial parasite remains dormant in the merozoite or ring stage for some time (six to twenty-four hours or longer) after it enters the erythrocyte during the chill, is explicable, perhaps, by a peculiarity in the life-history of the parasite, but it should not be overlooked that the high temperature of the body at this stage (103° to 104° F., 39° to 40° C. or over) is unfavorable for its metabolic activity and growth. If this view is correct, as the writer believes it to be at least a contributing factor, basing his conclusions upon a single observation, it seems that the artificial lowering of the temperature of the body shortly after the chill, by a cold bath or medication, would cause an earlier growth of the schizonts and the administration of quinin at this point would shorten the attack. This point, I believe, is worth while considering, especially in the management of those pernicious types of subtertian malaria in which the fever is prolonged.

The above facts regarding the life-cycle of malaria parasites

clearly show that the essential point in the successful treatment of malaria is not the indiscriminate use of quinin, but the rational use of it—that is, the administration of the drug at the proper time, when the parasite is beginning to grow, which accomplishes the best result. Of course, it is difficult, especially in field work or in atypical cases of malaria, to exactly follow this indication, but under such unfavorable circumstances a single microscopical examination of the blood will suffice in most cases to determine the kind and approximate age of the parasite and predict with sufficient accuracy the time of the following attack, and accordingly instruct the patient as to the time when quinin should be taken.

It is advisable, too, when possible, especially in hospital work, to control the clinical manifestation of an attack of malaria by the microscopical examination of the blood at intervals.

The above line of treatment has been followed by the author in all his cases of malaria in Brioni and elsewhere in the tropics with most successful results, and he has often seen a single dose of quinin, when given at the proper time, completely stop subsequent attacks.

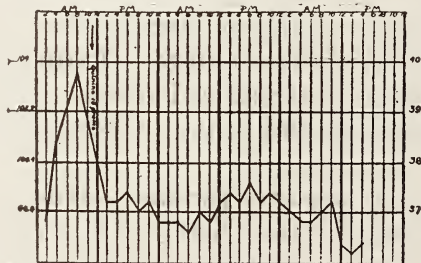


FIG. 6—CHART OF TERTIAN FEVER SHOWING EFFECT OF A SINGLE DOSE OF QUININ, ONE GRAM, GIVEN AT PROPER TIME IN PREVENTING RECURRENCE OF THE ATTACK.

(5) *Duration of Treatment:* The successful treatment of malaria depends upon continuing the administration of quinin for a certain length of time. A single dose of quinin may suffice to free the patient from a subsequent attack, but only temporarily, as usually the fever reappears after weeks or months. To avoid these return attacks the following rule should be followed: Give fifteen grains of quinin when the fever begins to fall and repeat the same dose for three subsequent days at the same hour. No quinin is given during the following four days, after which the same treatment is repeated—that is, fifteen grains for the following three successive days, after which no quinin is given for the following four

days, etc. The treatment, therefore, consists in giving fifteen grains of quinin for three successive days every week, and this should be continued for no less than two, and preferably three months, after which the prophylactic treatment of ten grains of quinin once every week should be taken for the remainder of the season.

The treatment of chronic malaria, those cases which show gametes in their blood or those of long standing in which the parasite may not be found, and which clinically present organic lesions and constitutional and other disturbances, such as enlarged spleen and liver, gastro-intestinal derangements, marked degrees of anemia, etc., are very unsatisfactory.

*Tonics:* Iron and arsenic are recommended. Of chief importance in such cases is the avoidance of subsequent attacks of reinfection, which aggravate the condition by the prophylactic treatment of quinin, and, when possible, the reinfections should be prevented by the removal of the patient to a non-malarial district, preferably to a high altitude or to a northern climate.

#### PROPHYLAXIS OF MALARIA.

With our present knowledge concerning malarial fevers and the life-history of the parasite, namely: that while quinin is a valuable specific against the asexual forms of the parasite it has no effect against the sexual forms or gametes; that these sexual forms, when taken by the mosquitoes, during biting undergo evolution in the body of this insect, and that the parasite is transmitted to man by the bite of an infected mosquito, the prophylaxis measures against malaria may be summarized as follows: (1) Routine blood examination; (2) quinin treatment; (3) proper care of malarial carrier; (4) destruction of mosquitoes; (5) quinin prophylaxis.

(1) *Routine Blood Examination:* As a routine procedure, the first attention of the parasitologist and hygienist should be directed to the examination of the blood of all persons, if possible, in the community. The importance of this preliminary precaution can be readily understood, as it is the only means of obtaining the first and most important insight concerning the kind and degree of infection upon which are formulated the future plans for the sanitation of the place.

(2) *Quinin Treatment:* All persons in whose blood malarial parasites are found, whether they present any symptoms of the disease or not, should be treated with quinin in the manner outlined above.

(3) *The Care of Malaria Carriers:* In order to prevent the spread of the infection, all malarial carriers, those which show the presence of the gamete forms of the parasite in their blood, should be isolated or removed to non-infected places, free from mosquitoes, if possible. Not uncommonly this important precaution is difficult or impossible to carry out, but under such circumstances it will be found easy to accomplish the same purpose by instructing the patients to sleep under mosquito nets in order to prevent the bite of mosquitoes.

(4) *Destruction of Mosquitoes:* The mosquitoes are easily and best destroyed in the larval stage by the application of about 1 c. c. of petroleum per square meter surface of water. The oil should be applied to all ponds, slow-flowing creeks, stagnant water, etc., regularly at least every week.

(5) *Quinin Prophylaxis:* This simple and efficient means in the prevention of malaria, as advocated by Koch, consists in taking ten to fifteen grains of quinin, previously dissolved in water, acidulated with hydrochloric acid, once or twice every week during the summer months.

#### CONCLUSIONS.

This brief and simple outline concerning the diagnosis, treatment and prophylaxis of malaria is the one which the author followed in the sanitation of Brioni during the years 1901 and 1902, with the result that, after a work of three summers, the island was declared completely free from the disease. The importance of this work and the result is manifold:

*First*, it is the best evidence of the marvelous progress which tropical medicine and parasitology, thanks to the general discoveries of Laveran, Manson, Ross, Grassi, Koch, Schaudinn and many others, workers in the field, have made in recent years.

*Second*, the sanitation of Brioni stands preëminently as an example in which, through careful and systematic appliance of modern prophylactic regulations, malaria was successfully eradicated for the first time from a community.

*Third*, the application of this prophylactic regulation rendered possible the sanitation of the Canal Zone in Panama, and has greatly improved the sanitary condition of other tropical countries here in America and abroad.

It is hoped that the American Governments and philanthropists, moved by the highest of humanitarian principles—the health and

happiness of mankind—in the near future will direct their efforts to give a helping hand to those unfortunate countries of tropical America which still remain oppressed and dormant under the burden of this disease of the tropics, which for centuries has prevented the development of the wealth of natural resources of those regions, to say nothing of the physical and mental qualities of their inhabitants.

Modern medicine, stimulated by the discoveries of Pasteur, has accomplished much in the control and practical eradication of a number of bacterial diseases—diphtheria, typhoid fever, tetanus and others—and this fact gives hope that the day is not far distant when the doctrine established by the French genius, "*C'est dans le pouvoir de l'homme de faire disparaître toutes les maladies infectieuses de la terre,*" will be an accomplished fact; and, in addition, may follow the eradication of tropical and parasitic diseases from the tropical countries.

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## NEWS AND COMMENT

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ORLEANS PARISH MEDICAL SOCIETY ADOPTS RESOLUTIONS.—The following resolutions were adopted at a meeting of the Orleans Parish Medical Society on November 25, 1918:

Whereas, as the terms of the armistice are being complied with, it becomes evident that the enemies of democracy cannot resume the war; and

Whereas, the needs of medical men in the army and navy in times of peace are measurably less than in times of war; and

Whereas, the visitation of epidemic disease accentuated the shortage of doctors for the civil population and entailed considerable suffering to the people. Since there has been a recrudescence of influenza in Spain and in England, there is such a possibility of a recrudescence in the United States, winter months generally being more favorable to the spread of that disease; and

Whereas, it has been the policy of the government to inflict as few hardships on the civil population in the winning of the war, the return of many of these men to their respective homes would in a large measure mitigate the suffering of the people if they were again confronted with a great outbreak of that or any other disease; therefore be it

Resolved, That the Orleans Parish Medical Society, in the interest of the civil population, petition the Secretaries of the Army and Navy to consider these various points, with the object of de-

mobilizing, as expeditiously as consistent with the efficiency of the service, as many of the doctors in the camps and abroad as possible. Be it further

Resolved, That a copy of this preamble and resolutions be forwarded to the Secretaries of War and Navy, to the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL, and to the *Journal of the American Medical Association*, with a request to publish same.

A CARELESSLY GUARDED GATE.—The *Scientific American*, in an editorial entitled "A Carelessly Guarded Gate," in its issue of November 2, places the blame of the spread of the Spanish influenza on the laxity of the port authorities along the Atlantic seaboard. The editorial severely arraigns both the officers of the Public Health Service on duty at the country's ports and the medical profession.

NEW HOME OF THE H. K. MULFORD COMPANY.—The H. K. Mulford Company, having outgrown their present pharmaceutical laboratories, will soon occupy the modern building located at Broad, Wallace and Fifteenth streets, Philadelphia. The building is of modern construction, being of steel, concrete and stone, nine stories in height, and has a total floor space of nearly ten acres. The equipment has modern labor-saving devices and comforts for employer and employees. This will be the largest building in the world devoted exclusively to the production of medicinal products.

JERUSALEM IS FREED OF MOSQUITOES.—Through the efforts of Louis Cantor, of Rochester, N. Y., a member of the American Zionist Medical Unit, Jerusalem has been freed of the mosquito pest. During Mr. Cantor's campaign 350 cisterns were petrolled and put in sanitary condition. Mr. Cantor was formerly connected with the Goethals Commission at the Panama Canal.

NAVAL BILL TO RETAIN MEDICAL STAFF.—The Bureau of Medicine and Surgery of the Navy is formulating a bill under which all temporary medical officers of the navy shall be offered an opportunity to qualify for an appointment in the permanent establishment in the rank now held.

EXPANSION OF ORTHOPEDIC JOURNAL.—The official publication of the American Orthopedic Association, the *American Journal of Orthopedic Surgery*, which has been the only journal in the English language devoted to orthopedic surgery, will become also the organ of the newly-formed British Orthopedic Association, under the

name of the *Journal of Orthopedic Surgery*. The publication will be issued from the present offices in Boston, under the management of Ernest Gregory. The committees appointed by the British Orthopedic Association are: R. C. Elmslie, M. S., F. R. C. S., editor, London; T. R. Armour, F. R. C. S.; W. H. Trethowan, F. R. C. S., and H. Platt, M. S., F. R. C. S.; while Drs. Charles F. Painter and Robert W. Lovett, of Boston, comprise the committee appointed by the American Orthopedic Association.

**NEW NEGRO TRAINING SCHOOL FOR NURSES.**—The opening of the free clinic of the Providence Hospital and Training School for Negro Nurses in New Orleans took place December 9, at the home of the hospital, 2517 Delachaise street. This school in New Orleans should prove of great benefit as well as answer a long-felt need.

**ELKS' WAR HOSPITAL DEDICATED.**—On November 16, 1918, the Elks' Reconstruction Hospital in Boston, for the treatment of wounded and disfigured soldiers, was dedicated and turned over to the government with impressive ceremonies.

**GEN. GORGAS HONORED.**—Surgeon General William C. Gorgas, U. S. Army, shortly before the armistice was declared, was made a grand officer of the Order of the Crown of Italy, in recognition of his services in military sanitation.

**TOURO INFIRMARY CELEBRATES FIFTIETH ANNIVERSARY.**—The Touro Infirmary of New Orleans, founded by Judah Touro, celebrated its fiftieth anniversary on December 5, in the Touro Nurses' Home. The occasion was marked by delightful ceremonies, and hundreds of people from all over the city came to participate in the event. The main program, consisting of speeches and music, was followed by a reception to the guests and a demonstration in one of the rooms of the nurses' home of two hospital wards showing methods used in the old days and those used at the present time. During the ceremonies a loving cup was presented to Mr. E. V. Benjamin, president of the board of directors, in appreciation of his services to the hospital during the past eight years.

**THE NATIONAL BOARD OF MEDICAL EXAMINERS** held examinations in Chicago and New York, from December 2-18, of candidates for licentiateship by this board.

MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.—The Annual Meeting of the American Public Health Association was held in Chicago, December 9-12, with headquarters at Hotel Morrison. All the available information regarding the management of the Spanish influenza epidemic was brought out through the papers read at the meeting and formed the principal subject under discussion. Reference committees were appointed who will report on the various phases of epidemic influenza during the year 1919.

THE KIBLINGER SANITARIUM, of Marksville, La., operated by the Drs. Kiblinger, reports a total of 223 cases during the sixteen months it has been in existence; medical cases were 37, and surgical 186, with only five deaths.

THE SOUTHERN PRACTITIONER INCORPORATED.—Dr. Jeering J. Roberts announces that, owing to impaired health and advanced age, which may any day compel him to desist from editorial work, he has transferred his title and interest in the *Southern Practitioner* to Frederick H. Robinson, managing editor of the *Medical Review of Reviews*, with which journal it will be incorporated and consolidated beginning with the January, 1919, number. For renewal of advertising contracts, subscriptions, etc., apply to Dr. Frederick J. Robinson, 296 Broadway, New York, N. Y.

PERSONALS.—Dr. Oscar Dowling, president of the State Board of Health, was recently elected adjunct professor to take charge of the course of hygiene in the School of Medicine of Tulane University.

Dr. C. Jeff Miller attended the meeting of the Southern Surgical Society, which met in Baltimore, December 17.

Dr. Isadore Dyer, member of the National Board of Medical Examiners, was in New York during the week of the meeting of that board in December.

Dr. R. C. Scott, director of the Laboratory of Hygiene and Tropical Medicine, Tulane University, visited the Boston School of Hygiene during the month in the interest of education along these lines.

REMOVAL.—Dr. W. P. Hickman, from Lecompte to Harvey, La.

DIED.—On December 9, 1918, at Laplace, La., Dr. Sidney Montegut, aged 49 years.

On December 2, 1918, Dr. William E. Brickell, the oldest and at one time one of the most prominent physicians of New Orleans, aged 91 years.

On October 24, 1918, at New Smyrna, Fla., Dr. R. R. Niblack, a graduate of Tulane University, class 1914, aged 27 years.

On November 26, 1918, Dr. Frank E. Burns, of New Orleans.

On November 26, 1918, at Shreveport, La., Dr. R. A. Gray, surgeon and veteran of the Civil War, aged 88 years.

On December 10, 1918, at her home on St. Charles avenue, Adrienne Goslee Matas, wife of Prof. Matas, of Tulane, and mother of Dr. Lucien Landry. Mrs. Matas was an ardent student and her husband's untiring co-worker, and will be much missed by many professional friends, who enjoyed her hospitality and kindly interest while they were students and assistants. The JOURNAL extends its sincere condolence to the bereaved family.

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## BOOK REVIEWS AND NOTICES

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*All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

**Principles of Bacteriology**, by Arthur E. Eisenberg, A. M., M. D., Cleveland, Ohio. C. V. Mosby & Co., St. Louis, Mo.

The book is devoted to general and special bacteriology, and each group of organisms is classified and tabulated in such manner that practically any necessary information regarding the organism or group of organisms is readily reviewed.

One section of the book is devoted to diseases of unknown causation, while another is given over to discussion of bacteria of soil, air, water and milk. An excellent feature of the book is the complete questionnaire provided in the end to facilitate the review of the subject.

Dr. Eisenberg has incorporated in the book many of the recent contributions to bacteriology, such as Schick's test, Plotz's work on the etiology of typhus, the work of Cole and his co-workers on pneumonia, and Bull on the serum therapy of the gas bacillus.

The book is particularly suited to the needs of medical students who desire facts without having to search pages of text. It is a splendid book for nurses, either in training or for reference after their graduation.

ELIZABETH BASS.

**Animal Parasites and Human Disease**, by Asa C. Chandler, M. S., Ph. C. Wiley & Sons, Inc., New York.

Most of the text-books on tropical diseases, and also modern works on medicine, give some attention to the parasites which may be involved in

the discussion of diseases. The work before us, however, presents an exhaustive catalogue of animal parasites as related to human disease, and in a manner which not only gives a comprehensive idea of the parasite, but at the same time furnishes an exact understanding of the relation of the parasite to the disease in which it is found.

The classification of the parasites in their own groups, and the consideration of the diseases under each, irrespective of the disease, speaks for a coördination altogether desirable in the plan of arranging diseases and their parasite factors.

Every chapter is interesting and illuminating. Especial note should be given to the statement of the author that the mites of the "itch" are sensitive to cold and do not spread during the winter. As this is quite contrary to the clinical observation of dermatologists, who see many cases of scabies in winter and few or none in summer, there must be some explanation other than the one the author gives. The dermatologists explain it by the freer perspiration and more bathing in summer and by the coverings on the beds in winter.

The text affords not only the best of authoritative reference for the parasites which are so numerous presented, but in the paragraphs dealing with symptomatology and treatment of the diseases an unusual care has been exercised in assembling the modern opinion and practice. Altogether the work is a valuable contribution to current medical literature.

DYER.

**Tropical Disease. A Manual of the Diseases of Warm Climates**, by Sir Patrick Manson, G. C., M. G., M. D., LL. D. (Aberdeen). Sixth edition. Revised throughout and enlarged. Wm. Wood & Co., New York.

The work of Manson on tropical diseases has been standard for many years and will continue to have its place among references on this subject. With each new edition, however, the revision has been limited to the contents of those which have preceded, and without adequate consideration of the many new conditions described in the current literature. This does not discount the value of the material in the book, but it does argue that the author in another edition should make many additions, even if it means changing the format, which really might be modified to the advantage of the text. Manson and tropical diseases are almost synonymous, so that it is hardly necessary to commend a book which is already almost a *vade mecum* to all physicians interested in the subject.

DYER.

**The Practical Medicine Series. Vol. IX. Skin and Venereal Diseases.** Edited by Oliver S. Ormsby, M. D., and James Herbert Mitchell, M. D. Series 1917. The Year Book Publishers, Chicago.

In small compass, this excellent review of recent literature on the topics named affords a splendid ready source of information for the busy doctor.

DYER.

**Naval Hygiene**, by James Chambers Pryor, A. M., M. D., Medical Inspector, U. S. Navy. P. Blakiston's Son & Co., Philadelphia.

While considerably a text for those who go to sea in the service of the navy, the book has material of so varied a sort as to make it a valu-

able contribution to the subject of hygiene. The whole subject, as ordinarily covered in texts of hygiene, is presented, and far more—for there are particularization of the practical appreciation of the principles of hygiene and sanitation. Recruiting, swimming, resuscitation of those exposed to drowning, malingering, seasickness, gas, submarines, are some of the subjects not usually found in such texts.

The student of hygiene—even though not concerned with the application to life on a ship—would find ample new material for thought in this work. The excellent illustrations (153 in number) add largely to the value of the text.

DYER.

**The Seriousness of Venereal Disease**, by Sprague Carleton, M. D., F. A. C. S. Paul B. Hoeber, New York, 1918.

A booklet comprising twenty-six plates of actual cases selected for the purpose of impressing upon the lay observer the sometimes terrible effects of venereal infection, especially when neglected, and originally intended as a gift for the use of Base Hospital No. 48.

C. C.

**Diseases of the Male Urethra**, by Irvin S. Koll, B. S., M. D., F. A. C. S. W. B. Saunders Company, Philadelphia and London, 1918.

A short, but rather comprehensive monograph, it is divided into fourteen chapters, two of which (on impotence and sterility) are upon only allied subjects which require greater attention. The best are those treating upon gonorrhea, both acute and chronic. The pre-eminent feature of the work is the collection of beautiful illustrations, including numerous colored plates.

The views expressed are conservative rather than "reactionary," as the author calls some of them, and are heartily approved in the main.

C. C.

**Genito-Urinary Diseases and Syphilis**, by Henry H. Morton, M. D., F. A. C. S.

This is a very complete, though not exhaustive, treatise on the subjects included in the title. It is composed of fifty-two chapters, is illustrated by 330 cuts, thirty-six of which are full-page colored plates and many are original and drawn from cases of the author.

The preliminary chapters, covering especially methods of examination and diagnosis, are particularly good. Those on syphilis are also excellent and brought up to date; however, while we usually try to avoid direct criticism regarding opinions, we must call attention to what we deem an erroneous statement, as it might lead to error on the part of the inexperienced where error and doubt already too often creep in: the author, in describing chancre, states that induration is "constantly present and cartilaginous." Pity 'tis not, as the diagnosis would be much simplified.

Dr. Morton has given an excellent reference book for the student and practitioner, and that it is issued as a fourth edition is only one sign of its merit.

C. C.

**The Physician's Visiting List**. P. Blakiston's Son & Co., Philadelphia, 1919.

This old friend turns up for the sixty-eighth year, much in its usual acceptable form. The dose table is arranged in a better manner. It is presented in three editions—the regular, the perpetual, and the monthly.

## PUBLICATIONS RECEIVED

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**P. BLAKISTON'S SON & CO.,** Philadelphia, 1918.

**Practical Physiological Chemistry**, by Philip B. Hawk, M. S., Ph. D.  
Sixth edition, revised and enlarged.

**Physician's Visiting List**, 1919.

**LEE & FEBIGER**, Philadelphia and New York, 1918.

**Surgical Applied Anatomy**, by Sir Frederick Treves, G. C. V. O., C. B.,  
LL. D., F. R. C. S. Seventh edition. Revised by Arthur Keith, M. D.,  
LL. D., F. R. C. S., F. R. S., and W. Colin Mackenzie, F. R. C. S.,  
F. R. S. E.

**W. B. SAUNDERS COMPANY**, Philadelphia and London, 1918.

**The Surgical Clinics of Chicago.** October, 1918. Vol. 2, No. 5.

**THE MACMILLAN COMPANY**, New York, 1918.

**The Newer Knowledge of Nutrition**, by E. V. McCollum.

**F. A. DAVIS COMPANY**, Philadelphia and London, 1918.

**Clinical Medicine for Nurses**, by Paul H. Ringer, A. B., M. D.

**THE YEAR BOOK PUBLISHERS**, Chicago, 1918.

**The Practical Medicine Series.** Under the general editorial charge of  
Chas. L. Mix, A. M., M. D. Volume V: **Gynecology**, edited by Emilius  
C. Dudley, A. M., M. D., LL. D.; **Obstetrics**, edited by Joseph B. DeLee,  
A. M., M. D.

**THE GOVERNMENT PRINTING OFFICE**, Washington, D. C.

**Birth Statistics.** For the registration area of the United States, 1916.  
Second annual report.

**United States Naval Medical Bulletin.** October, 1918.

**Public Health Reports.** Vol. 33, Nos. 43, 44, 45, 46 and 47.

### MISCELLANEOUS:

**Forty-Ninth Annual Report of the Secretary of State on the Registration of Births and Deaths, Marriages and Divorces in Michigan.** For the year 1915. (Wynkoop-Hallenbeck-Crawford Company, Lansing, Mich., 1918.)

**Legislative Assembly of Porto Rico.** Senate of Porto Rico. Address of Dr. Isaac Gonzales Martinez in the Academy of Medicine on the Sanitary Problem of Porto Rico.

**MORTUARY REPORT OF NEW ORLEANS.**

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for October, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever .....	5	2	7
Intermittent Fever (Malarial Cachexia) .....	2	2	4
Smallpox .....			
Measles .....	1		1
Scarlet Fever .....			
Whooping Cough .....	2	2	4
Diphtheria and Croup .....			
Influenza .....	866	359	1225
Cholera Nostras .....			
Pyemia and Septicemia .....		1	1
Tuberculosis .....	63	45	108
Cancer .....	17	6	23
Rheumatism and Gout .....		1	1
Diabetes .....	6		6
Alcoholism .....			
Encephalitis and Meningitis .....	5	1	6
Locomotor Ataxia .....			
Congestion, Hemorrhage and Softening of Brain .....	16	7	23
Paralysis .....	2		2
Convulsions of Infancy .....	1	1	2
Other Diseases of Infancy .....	19	14	33
Teranus .....			
Other Nervous Diseases .....	5	2	7
Heart Diseases .....	62	43	105
Bronchitis .....	4	4	8
Pneumonia and Broncho-Pneumonia .....	341	228	569
Other Respiratory Diseases .....	2	1	3
Ulcer of Stomach .....	2		2
Other Diseases of the Stomach .....	2	1	3
Diarrhea, Dysentery and Enteritis .....	23	23	46
Hernia, Intestinal Obstruction .....	5	2	7
Cirrhosis of Liver .....	7	6	13
Other Diseases of the Liver .....	3		3
Simple Peritonitis .....			
Appendicitis .....	6		6
Bright's Disease .....	23	21	44
Other Genito-Urinary Diseases .....	14	11	25
Puerperal Diseases .....	3	3	6
Senile Debility .....	4	1	5
Suicide .....	3		3
Injuries .....	25	20	45
All Other Causes .....	20	20	40
<b>TOTAL</b> .....	<b>1559</b>	<b>827</b>	<b>2386</b>

Still-born Children—White, 48; colored, 27; total, 75.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1,000 per Annum for Month—White, 67.81; colored, 95.42; total, 74.56. Non-residents excluded, 67.31.

**METEOROLOGIC SUMMARY (U. S. Weather Bureau).**

Mean atmospheric pressure..... 29.97  
 Mean temperature..... 75  
 Total precipitation..... 11.05 inches  
 Prevailing direction of wind, southeast.

**MORTUARY REPORT OF NEW ORLEANS.**

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for November, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever	3		3
Intermittent Fever (Malarial Cachexia)	1		1
Smallpox			
Measles			
Scarlet Fever			
Whooping Cough	1	2	3
Diphtheria and Croup	1		1
Influenza	160	66	226
Cholera Nostras			
Pyemia and Septicemia	1		1
Tuberculosis	38	35	73
Cancer	25	6	31
Rheumatism and Gout		2	2
Diabetes	3		3
Alcoholism			
Encephalitis and Meningitis	2		2
Locomotor Ataxia	1		1
Congestion, Hemorrhage and Softening of Brain	25	7	32
Paralysis	5	1	6
Convulsions of Infancy	1	1	2
Other Diseases of Infancy	16	8	24
Tetanus		1	1
Other Nervous Diseases	5	2	7
Heart Diseases	68	39	107
Bronchitis	5	1	6
Pneumonia and Broncho-Pneumonia	85	61	146
Other Respiratory Diseases	2		2
Ulcer of Stomach	1	1	2
Other Diseases of the Stomach			
Diarrhea, Dysentery and Enteritis	19	18	37
Hernia, Intestinal Obstruction		1	1
Cirrhosis of Liver	5		5
Other Diseases of the Liver	1	2	3
Simple Peritonitis			
Appendicitis	2	2	4
Bright's Disease	24	13	37
Other Genito-Urinary Diseases	10	5	15
Puerperal Diseases	3	1	4
Senile Debility	5		5
Suicide	2		2
Injuries	20	16	36
All Other Causes	25	15	40
<b>TOTAL</b>	<b>565</b>	<b>306</b>	<b>871</b>

Still-born Children—White, 25; colored, 21; total, 46.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1,000 per Annum for month—White, 24.21; colored, 35.51; total, 27.50. Non-residents excluded, 21.88.

**METEOROLOGIC SUMMARY (U. S. Weather Bureau).**

Mean atmospheric pressure. . . . . 30.08  
Mean temperature. . . . . 62  
Total precipitation. . . . . 4.46 inches  
Prevailing direction of wind, northeast.



# NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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## EDITORIAL

### POSTGRADUATE STUDY OF MEDICINE.

The Teutonic fetich has been broken; the glamor of medical study at Vienna or Berlin has passed with the reflexes of the war. The opportunities may be yet afforded, but there will be no haste among American physicians to seek the fields in which they were so successfully exploited for many years before the war. More than this, the experiences of so many of the younger profession in the field, with every faculty alert and in constant training, will have provided study enough for many and for some time to come.

Time will be afforded, then, to reconstruct the idea of post-

graduate study both at home and abroad. The intensive courses provided for the Medical Reserve Corps officers in the larger cities and under the auspices of medical colleges of the first rank demonstrated conclusively what could be done, and many of us have wondered that such courses had not been arranged before.

The practical results were exceedingly valuable for efficient service in the Medical Corps of the army, and the number of men specially trained in laboratory, orthopedic or other special surgery, heart and lung diagnosis, sanitary and hygienic practice, etc., has been multiplied many times. The return of these men to their own communities will encourage further study among others, and the educational institutions in our large centers must be ready to afford such training.

Both in England and France the movement is already started to interest American physicians in the medical opportunity afforded. Paris, Bordeaux, Nancy and Lyons have for many years offered excellent material and in so generous a manner that Americans have overlooked the great opportunities. The Latin-American countries have long looked on Paris as the center of scientific medicine, and the French-speaking medicos of New Orleans and of Louisiana have in years gone by considered Paris as the place to complete a medical training.

There has been too much commercialization of postgraduate medicine in the Teutonic countries to make for the best, and the reflex of this has shown in places in the United States where the schools for postgraduate study have been mere melting-pots, with no academic aims.

The Mayo Foundation has at least offered a clear example of what graduate medical instruction should be, upon a plane which requires academic preparation before and during the period of study in the regular medical course. Such institutions are necessary and, with such endowment as Minnesota (with which the Mayo Foundation operates), Harvard, Cornell and Hopkins now possess, there should be afforded ample opportunity for advanced medical education for our own graduates and for those who come from abroad. Hereafter the teachers and exponents of scientific medicine must come from such schools of training. The exigencies of livelihood, however, demand practical postgraduate courses for the men who have to meet the sick and the maimed in every-day life, and

while they may be scientific as well, they must have ready, practical knowledge and of the most advanced form.

The schools of postgraduate instruction must organize to that end. The medical colleges of this country have an excellent co-operative organization, with a systematic agreement upon the methods and regulation of medical study and with accepted standards. Is it not timely that the institutions aiming at graduate and "postgraduate" instruction should get together and consider some more tangible organization than at present exists?

Just at present, the partial training received by medical practitioners at the various camps seems to have whetted their appetite for learning, and a great many are journeying from the tent to the school, if we are to judge by our experience here at the Polyclinic. Even though some of the men have already put aside their uniforms, glad to resume their easy-fitting civilian togs, those in khaki are as numerous as the men in their plain clothes at the clinics and in the laboratories of the Graduate School of Medicine of Tulane at present. They have come, and are coming, from all over the country, and they seem to realize better than before what they need in the way of instruction and opportunities for work.

As ever, the more a man knows the more he realizes how much he has to learn—an encouraging thought for those engaged in graduate teaching and a further argument in favor of their better organization.

## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### GALL-STONE DISEASE COMPLICATING PREGNANCY.

By AIMÉ PAUL HEINECK, M. D., Chicago.

During gestation, women are subject to many surgical conditions. The safety of the product of conception, the safety of the mother, demand that our knowledge of these surgical ailments be increased. Definite and accurate conclusions should be formulated as to the most opportune, most appropriate and, therefore, the most scientific treatment of any and all surgical states complicating pregnancy. In previous contributions we stated that every case of ectopic pregnancy, irrespective of type or stage of development, calls for the immediate ablation of the ectopic ovum. Immediate operative removal of the ectopic ovum terminates the gestation and protects the mother from the morbidity and fatality incident to extra-uterine pregnancy:

In other contributions, also published in these columns, we urged that every case of appendicitis complicating pregnancy be subjected to operation during gestation. Appendicitis is a surgical disease; when it complicates pregnancy it calls for the immediate operative removal of the inflamed appendix, irrespective of the type of inflammation, irrespective of the age of the pregnancy. In women, previous to and during the child-bearing period, the non-operative treatment of appendicitis invites disaster, immediate, remote, or both. The timely removal of the inflamed appendix to a great extent protects the mother from the complications and sequelæ, from the morbidity and mortality incident to appendicitis. Operative removal of a diseased appendix does not interrupt gestation, does not exert any unfavorable influence on delivery.

The frequency of cholelithiasis makes this condition one of great practical interest. In the collective statistics of nineteen European and American authors, 80,802 necropsies, the frequency averaged 5.94 per cent (Hesse). As the manifestations of gall-stone disease are often unrecognized, misinterpreted or misdiagnosed, its in-

idence is greater than is supposed, is far greater than the number of reported cases would lead us to believe. It occurs in both sexes and at all ages, in the fat, in the lean, in the weak, and in the strong. The older the patient, the more liable is he or she to have gall-stones. "Gall-bladder disease is preëminently a disease of the middle-aged female, but is by no means confined to that age or sex" (Deaver.)

Gall-stone disease is of common occurrence during pregnancy, during the puerperium, during lactation. In fact, its greatest incidence is in the child-bearing period. Statistics have established beyond dispute that gall-stone disease, latent or manifest, is more common in women than in men. Out of 655 patients laparotomized for gall-stones, 536 were women, 119 men (Kehr). Of 1,244 women operated upon for uterine myomata at the Mayo Clinic, 92, or 7.1 per cent, had gall-stones.

STATISTICS OF 940 CASES OF CHOLELITHIASIS (K. GRUBE).

Age. . . . .	10-21	21-30	31-40	41-50	51-60	61-70	71-80
Male. . . . .	2	6	44	55	38	6	5
Female. . . . .	8	114	213	215	148	52	14
Married, with children. . . . .	1	82	177	176	124	44	9
Married, without children. . . . .	1	8	9	12	5	6	3
Unmarried women . . .	6	24	27	27	19	2	2

Unquestionably, child-bearing has something to do with the frequency of gall-stones in that state. Cholelithiasis may complicate a pregnancy otherwise normal; it has been found associated with ectopic gestation (Brothers). It occurs in primiparæ (Heineck), deuterparæ (Barillon), multiparæ, VIII-para (Roith), IX-para (Graham). Manifestations of cholelithiasis may precede, coincide with, or follow an abortion or a premature labor. In seven of the analyzed cases there was a history of one or more abortions accidental or induced—Watson, one; Villard, two; Peterson, six; Brothers, ten. Gall-stone disease may become manifest and necessitate operative relief at any period of gestation—second month (Bosse), third month (Roith), fifth month (Mack), sixth month (Moulden), seventh month (Davis). In a large number of cases the initial symptoms first occur during the child-bearing period (Rudeauux). Our cases can be classified according to patient's age at time of operation, as follows: The youngest was 21 years old (Villard), the oldest 42 years (Amann). From 25 to 29 years, inclusive, nineteen patients; 30 to 35 years, inclusive, eleven patients; 36 to 40 years, inclusive, 5 patients. Ploger reports cases in which

there was a definite aggravation of symptoms during pregnancy; Naxera reports eight cases in which the first attacks of biliary colic occurred during gestation. "Seventy-five per cent of gall-stones are found in women, and in 80 per cent of these patients the symptoms developed during pregnancy" (Torrance). Gall-stones are more commonly found in women who have borne children than in those who have remained sterile. Osler, quoting Naunyn, states that 90 per cent of women with gall-stones have borne children. "Eighty-four per cent of 135 women with gall-stones had borne children" (Peterson).

Literature of the subject contains case reports like the following: In an empyematous gall-bladder, associated with pericholecystitis, perforation from stones occurred during labor. Two days later the patient was operated, and thorough drainage was instituted; sepsis developed. Death occurred on the third post-operative day (Rose). Rupture of a calculous gall-bladder can occur previous to, during or after labor. Pinard successfully operated a case of calculous cholecystitis on the eleventh day of the puerperium. Vineburg incised the gall-bladder in two cases of acute cholecystitis, in one case on the tenth day, in the other on the twelfth day after delivery, and removed numerous small stones therefrom. Both cases recovered. In the same report he discusses a case of acute diffuse peritonitis consecutive to a ruptured gall-bladder, supervening a few hours after normal delivery. The condition was too grave to warrant surgical intervention; death resulted twenty-four hours later. This patient had had, during her pregnancy, several attacks of biliary colic; her distended gall-bladder had been mapped out. Potocki's patient, a deutopara in the eight and one-half month of a normal pregnancy, had a sudden attack of right hypochondriac pain, nausea, vomiting, etc. Labor having started, the patient was delivered of a living, normal child. Eleven hours after the termination of labor a cholecystotomy was performed; the gall-bladder contained pus and numerous calculi. Drainage; recovery. In the discussion provoked by Graham's case there was reported a case of death from general peritonitis due to rupture of the gall-bladder during labor. The post-mortem revealed the rupture and 250 stones scattered about in the abdomen. Medical attendants should keep in mind that fever during the puerperium can be due to causes other than puerperal fever—appendicitis, gall-bladder disease, etc.

Greater familiarity with the symptomatology, clinical course and

treatment of cholelithiasis complicating pregnancy will lessen the frequency of occurrences such as the preceding, and will also qualify us to combat successfully the various manifestations of gall-stone disease. I have analyzed and studied all the cases of undoubted gall-stone disease complicating pregnancy reported with sufficient data, thirty cases in all, in the French, English and German medical literature during the years 1900-1918, inclusive.\* Many more cases were studied, but owing to the fact that they are not reported with sufficient detail they have influenced our conclusions only in a general way. In each case the diagnosis was verified either at the time of operation or at the autopsy.

#### ETIOLOGY.

The cause of gall-stone disease is not definitely known. Numerous theories have been advanced; not one has as yet been found worthy of general acceptance. The following three factors, owing to their frequency previous to or during the existence of gall-stone disease, impress one forcibly as being important predisposing causes. In the individual case, one, two or all of these three favoring influences may be operative:

(a) Conditions associated with, favoring or causing biliary stasis.

(b) Inflammatory states of the biliary tract, primary or secondary to local disease or to some general febrile state.

(c) Regimens or diatheses favoring or causing hypercholesterinemia.

Cholesterin, the principal component of gall-stones, is derived from the bile. Simple bile-stasis can, through the precipitation of cholesterin, lead to cholesterin-stone formation. Precipitation is prone to occur in inspissated bile, and the elements thrown down may lead to stone formation. In the later months of pregnancy the abdominal muscles and the diaphragm contract feebly, and the bile, being inefficiently expelled, stagnates in the gall-bladder.

Stasis, in addition to separating out the essential constituents of gall-stones from the bile, favors the growth of bacteria in the residual fluid. According to Sherrington, bacteria cannot enter the bile-ducts as long as the bile is expelled at regular intervals. Bile is not an antiseptic; it does not prevent the development of bacteria;

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\*All the periodicals to be found at the John Crerar Library, Chicago, Ill.

left exposed to bacterial contamination, it undergoes putrefaction. Obstruction to the bile outflow may be due to foreign bodies present in the gall-bladder or, in the larger bile-ducts, may be determined by inflammatory or other degenerative changes involving the gall-bladder or the bile-ducts, or may result from such pathological states of contiguous organs as lead to impingement of one or more of the latter upon the bile-ducts. Obesity, sedentary life, constipation, tight clothing, such as ill-fitting and improper corsets, etc., are held by some to be predisposing factors. Miyake believes that the non-wearing of corsets by Japanese women is one of the principal reasons why gall-stones are so infrequent among them.

Bacterial organisms are said to be the most essential cause in the majority of cases of gall-stones. In this connection, one should not ignore the relation of mouth and teeth infections to appendicitis and cholecystitis. In some cases, supplementing the noxious influence of bile stasis, in others acting independently, in many acting conjointly, there is present a bacterial inflammation of the mucous membrane of the gall-bladder, of the bile-ducts, or of both. If the stone be of aseptic origin, the abnormal element lies in the composition of the bile; if the stone be of inflammatory origin, the pathological condition is the cholecystitis or catarrh of the gall-bladder.

A history of acute cholecystitis first observed within a few weeks or months of parturition is given by many of the patients operated upon for gall-stone disease. Both pregnancy and the puerperium are not infrequently complicated by acute exacerbations or recurrences of cholecystitis (Bettmann). The gastro-intestinal disturbances and constipation that attend the pregnant state no doubt favor the migration of the bacillus coli to the gall-bladder.

Although infection and retarded bile outflow predispose to gall-stone formation, they are not all-sufficient. Occlusion of the cystic or of the common duct may co-exist with an infected gall-bladder, and yet no gall-stones form. In order to produce calculi, infections of the gall-bladder must be of low type: colon bacillus, bacillus typhosus, staphylococcus, etc. Typhoid fever is considered an important etiological factor; it occurs in all lands and among all races, still gall-stones are very uncommon in the tropics; typhoid fever is less prevalent than formerly, but there seems to be no decrease in the number of patients having gall-stones.

Diathetic conditions can so alter the composition of the bile as

to favor—suitable local conditions existing—the production of calculi. The supposition is that gall-stones are deposited as a result of error in metabolism (over-concentration of cholesterin in blood and bile). Aschoff's theory of gall-stone formation can be stated briefly as follows: Cholesterin is a normal constituent of the bile and of the blood, its amount therein depending upon the amount of cholesterin in the food. A diet rich in fats and albuminous foods raises the cholesterin content of the bile. There is a distinct cholesterin diathesis. Persons with this diathesis, even upon an ordinary diet, retain their lipoids, an increased cholesterin content of the blood and of the bile results, and sooner or later a sudden precipitation of the bile cholesterin in the form of gall-stones may occur. Stones are often present in patients with no excess of cholesterin in their blood, the cholesterin shower having occurred at some previous time.

While in the pregnant woman the presence of hypercholesterinemia associated with a clinical history of gall-stones is strongly suggestive of cholelithiasis, a low cholesterin figure does not prove the absence of gall-stones. The cholesterol increase becomes manifest during the later half of gestation (Slemons and Curtis).

The sedentary life of the pregnant woman and the encroachment of the enlarging pregnant uterus upon the liver and its biliary passages favor bile stasis. The normal obstetric patient eliminates less, during the entire period of gestation, than the normal non-pregnant woman. There is no well-recognized line of demarcation between normal and pathologic pregnancy. During pregnancy the fetal metabolism throws extra work upon the maternal liver; this may determine a temporary impairment of function, an hepatic insufficiency, evidenced by urobilinuria, alimentary glycosuria, moderate icterus, etc. This added stress also predisposes the liver to local changes, evidenced by "the liver of pregnancy," icterus gravidarum, acute yellow atrophy of the liver, etc. The factors enumerated above, taken in connection with the fact that the bile and blood of pregnant women contain more cholesterin than the bile and blood of men or non-pregnant women, explains in part the greater frequency of gall-stones in child-bearing women, explain in part the undeniable etiological influence of pregnancy in gall-stones formation.

#### PATHOLOGY.

One, two, three or more biliary calculi may be present in the

same patient. From a pregnant patient Moulden removed 17 biliary calculi; Bosse, 26; Graham, 80 odd; Roith, 84; Finkelstone, 86; Brothers, 250. In reporting his case, Davis says the calculi were "too numerous to count."

Gall-stones vary in volume, in shape, in location. Bishops says that in his case the calculi were "like fig seeds"; Mack that they were "pea-shaped"; Barillon, "mulberry-shaped"; Peterson, "facetted." In Rissmann's case the calculus was large, long and elliptical; in Roith's, pigeon-egg sized. In many of the cases, where numerous, the calculi were pea-sized.

Gall-stones usually develop in the gall-bladder, rarely in any other portion of the biliary tract. In their wandering they may lodge in the hepatic duct, in the cystic duct. "Seventeen stones were scooped out of the dilated cystic duct" (Moulden) (Later Moulden reoperated his patient, opened the duodenum and removed five small stones from the ampulla of Vater). In the common duct (Ploger); in the duodenal end of the common duct, including the ampulla of Vater (Rissmann). "Autopsy showed stones in hepatic duct and in common duct" (Peterson). From a VI-para, two months pregnant, Bosse removed one gall-stone from the common duct and twenty-five from the gall-bladder.

Stones may precede the presence of inflammatory changes in the gall-bladder, may be associated with and be the cause or effect of inflammation, slight, moderate or severe. The inflammation may be limited to the gall-bladder (cholecystitis), to the larger ducts (cholangitis), it may spread to the finer radicles of the biliary tract (diffuse cholangitis), or may be diffuse, involving the gall-bladder and the biliary passages. Cholelithiasis may result from a cholecystitis, and, once established, it becomes a factor in the maintenance of the cholecystitis, in the causation of recurrent attacks of cholecystitis. Inflammation of the gall-bladder and bile-ducts is acute or chronic, ulcerative, perforative or adhesive, catarrhal, phlegmonous, suppurative or gangrenous. It may be limited to the mucous membrane, or involve part (Davis), or the entire thickness of the gall-bladder wall. In the latter case, adhesions are very liable to form between the gall-bladder and one or more contiguous organs. The exudate accompanying these inflammations is mucous, serous, sero-fibrinous or purulent (Graham) in nature. "Gall-bladder, in addition to calculi, contained 200 cubic c. m. of pus" (Moulden). If perforation or rupture of a gall-

bladder occur, the stones therein present may escape, either into the peritoneal cavity or into a mass of adhesions, or into the liver substance.

Graham, operating for a ruptured gall-bladder, a IV-para six months pregnant, removed three stones from the peritoneal cavity, one from the gall-bladder and two from the cystic duct. Should the inflamed gall-bladder become adherent to a neighboring viscus, the resulting adhesions may cause functional impairment or an internal fistula, through which the gall-stones may escape; if the gall-bladder become adherent to the abdominal wall, the inflammation may involve the latter and lead to the formation of an inflammatory mass, from which, ultimately, an external biliary fistula may result.

Amann's patient, a multipara, in the fifth month of pregnancy, noticed a painful mass, supposedly a fibroma, developing in the hepatic region. She went through a normal labor, and three months later this painful tumor-mass was successfully removed. It had resulted from a pericholecystic inflammatory process extending to and involving the contiguous abdominal wall and the appendix vermiformis, and it consisted of a ruptured gall-bladder and an extruded gall-stone, an appendix and an inflammatory tissue mass.

Impaction of a stone in the cystic duct may lead to:

1. Dilatation of the gall-bladder and a resulting (*a*) simple hydrops (the wall of the gall-bladder may be greatly thickened, may be paper-thin, may be almost transparent); (*b*) empyema.

2. Acute or chronic cholecystitis; catarrhal, serous, sero-fibrinous suppurative, gangrenous, phlegmonous, ulcerative, perforative, adhesive.

3. Sclerosis of the gall-bladder; atrophic, hypertrophic.

4. Calcification of the gall-bladder.

If the calculus becomes impacted in the common duct there may result any of the forementioned complications or a distention of the common duct (Bosse), with or without a cholangitis.

Inflammation in the common duct involving contiguous tissues may produce a thrombo-phlebitis, and thus interfere with the circulation through the liver, may extend to the head of the pancreas, changing it to a firm tumor (Finkelstone). In his case, Max Neu found the gall-bladder shrunken, the common duct widened and bound down by broad inflammatory adhesions to the duodenum.

## SYMPTOMS.

Moynihan, Mayo and many other careful clinical observers are of the opinion that gall-stones do not exist without producing symptoms. They state that the vague term "indigestion" is used variously by patients to indicate all the several forms of distress which are the forerunners of a crisis of acute biliary colic. Parks claims that the statement, "may not cause symptoms," is an admission of inability to recognize incipient symptoms.

Gall-stones produce symptoms by irritation, by migration, by obstruction. Pain and tenderness are most constant and most important symptoms of cholelithiasis, being described by the patients under a variety of terms: (*a*) discomfort (Roith), (*b*) deep soreness (Villard), (*c*) biliousness, (*d*) dyspepsia, (*e*) gastric distress (Barillon); (*f*) neuralgia. The pain, usually limited to the region of the gall-bladder, radiates quite often to the epigastrium, subscapular region, neck, shoulders, arms, etc. "Pain in hepatic region" (Bosse). "Pain in right hypochondrium, extending to right shoulder" (Davis). "Repeated attacks of pain under the right scapula, extending around to the epigastrium" (Bishop). "Lancinating pain in epigastrium, radiating to back under the shoulder-blade" (Moulden). "Sudden attack of pain in region of navel" (Roith). "Pain in right hypochondrium, radiating to shoulder and to back" (Villard).

What causes this pain? Various factors, chief among which are: (*a*) The calculi themselves; (*b*) the inflammation present in the gall-bladder and in the biliary tracts; (*c*) adhesions of inflammatory origin binding the gall-bladder, cystic or common duct to adjacent organs. These adhesions can also determine severe functional disturbances of stomach and intestines.

"The most characteristic and constant sign of gall-bladder hypersensitiveness is the inability of the patient to take a full inspiration when the physician's fingers are hooked up deep beneath the right costal arch below the hepatic margin. The diaphragm forces the liver down until the sensitive gall-bladder reaches the examining fingers, when the inspiration suddenly ceases as though it had been shut off. I have never found this sign absent in a case of calculus or in infectious cases of gall-bladder disease." (Murphy.)

The localized tenderness and the rigidity of the abdominal wall may be so marked that satisfactory palpation is difficult, impossible. Other factors—thick abdominal wall, meteorism, deep-seated

location of the gall-bladder—may prevent the detection of the latter. In a few cases, however, a gall-bladder distended by calculi (Peterson, Roith), or by fluid, mucous, purulent, etc., in nature, or by both calculi and fluid (Villard), can easily be mapped out. A gall-bladder contracted by inflammation does not give rise to palpable tumor.

#### JAUNDICE.

In the diagnosis of gall-stone disease too much significance has been attached to the symptom of jaundice. It is an important sign, but is not to be considered essential to diagnosis; like hemorrhage in duodenal ulcer, it ought not to be waited for. Jaundice may not occur at all (Heineck, Finkelstone), it may be inconspicuous, it may be late, it may be inconstant. In some cases each attack of gall-stone colic is followed by transient jaundice (Bishop). The presence of jaundice was definitely recorded in twenty of our thirty cases. The jaundice was accompanied by its usual concomitant manifestations, digestive disturbances (Villard) beer-brown urine (Bosse, Davis, etc.), clay-colored stools (Ploger, Rissmann, etc.)

In diseases of the biliary passages, icterus is of two forms: it is of inflammatory or of lithogenous origin. The cause of the first is an inflammatory swelling of the mucous membrane of the biliary passages (Korte, Barillon). In gall-bladder infections the swelling of the mucous membrane may extend to and involve the common and hepatic ducts and thereby obstruct the bile-flow. The mechanical occlusions, partial or complete, of the common duct by a calculus, causes lithogenous jaundice. Icterus is frequently due to both inflammatory and calculus obstruction.

As long as a calculus remains in the gall-bladder, or in the cystic duct, jaundice is not likely to appear. In eleven of the cases in which jaundice was observed, there was present, with or without calculi, a common duct stone (Bosse, three cases; Heineck, Mack, two cases; Ploger, Rissmann, McNee, Roith, two cases). In a lesser number of cases the provocative cause was the compression of the common duct or of the extra-hepatic part of the hepatic duct by a large stone in the cystic duct, by swollen lymph-glands, by inflammatory exudates, by adhesions compressing or kinking the ducts, etc.

#### COLIC.

As stated before, gall-stones cause pain through the irritation,

infection and inflammation that result from their impaction in the neck of the gall-bladder or in any part of the bile-ducts. They also cause a characteristic lancinating pain, agonizing in nature, by meandering through the bile-ducts for a shorter or longer distance and setting up a spasm of the muscular wall behind the stone. This latter pain is intense, is designated as biliary colic, and is usually accompanied by chills, frequent vomiting, white, lard-like stools, and bile-stained urine.

Gall-stone colic can be caused by: (1) An adherent, inflamed gall-bladder containing calculi (Finkelstone) or having contained calculi; (2) an inflamed gall-bladder distended by fluid or stones, its cystic duct being occluded by inflammation or by a calculus (Barillon) or calculi; (3) the entrance into or attempted passage through some part of the ducts of a calculus, altered bile, mucus or other irritating foreign body; (4) the transit of a stone through the bile passages; (5) impaction of a stone in a dilated inflamed common duct or in any of its tributaries (Bosse, two cases; Ploger, Rissmann). All the cases with stone in the common duct gave a history of biliary colic.

#### DIAGNOSIS.

If the symptoms are typical, the diagnosis of gall-stone disease is easy. In addition to recognizing the condition of cholelithiasis, the surgeon should, if possible, determine the exact location of the calculi and note what pathological conditions or changes may be present. Digestive disturbances are undoubtedly the cause of most failures to recognize early gall-bladder symptoms. Cholecystitis and cholelithiasis, owing to their reflex symptoms, are often mistaken for diseases of the stomach.

By keeping in mind that much of the dyspepsia of pregnancy is from unrecognized gall-stone disease and that gastric disturbances in pregnancy should receive careful consideration and not be regarded simply as concomitant features of the pregnant state, many diagnostic errors will be avoided. The discovery of calculi in the feces is evidence of their previous existence. It is not proof that any remain. X-ray pictures taken and interpreted by expert Röntgenologists are of paramount importance in the diagnosis of biliary, renal or ureteral calculi. The absence of any Röntgenographic shadow does not prove the absence of gall-stones. "X-ray revealed outline of gall-bladder filled with stones" (Peterson).

Things of importance to arrive at a diagnosis are :

1. An exact history, including the record of previous attacks of hepatic colic. "Previous attacks of biliary colic" (Rissmann, Ploger). "Gave a history of having had similar attacks during her previous pregnancies" (Davis). "Previous attacks of biliary colic. Three years ago first attack of pain in hepatic region. Since then, recurrent attacks" (Bosse).

2. The location of the tenderness and pain and the nature and radiating character of the latter.

3. A thorough examination, including a careful inspection and palpation of the abdomen, especially of the hypochondriac region.

4. The exclusion of such pathological conditions as simulate gall-stone disease—lead colic, renal colic, duodenal ulcer, nephrolithiasis, chronic appendicitis, movable kidney, infection of the genital tract. Cholecystitis is frequently diagnosed appendicitis, and *vice versa*. Gall-stone disease and appendicitis are frequently present in the same patient. Cholelithiasis may co-exist with other pathological states.

#### TREATMENT.

In cholelithiasis two urgent indications are present: (1) The removal of the calculus or calculi present in the gall-bladder or ducts; (2) the cure of the inflamed condition of the bile tracts. It is agreed that gall-stones should be removed. No one nowadays treats a vesical calculus by other procedures than operation. The spontaneous passage of a calculus through the intestine may bring about a cure, but other calculi usually remain in the gall-bladder, and any one of them may set up an inflammatory attack. In gall-stone disease, medical treatment is purely prophylactic, merely palliative; it is not curative. Moynihan says: I hold that, once a diagnosis has been made, operation is always indicated unless there are grave reasons forbidding resort to surgery. Reasons should not be asked to support a plea for operation, but to justify any other course than this."

The earlier the patients are operated, the more prompt the relief, the more numerous the complete recoveries. With advancing pregnancy, the technical difficulties incident to operations on the gall-bladder and bile-ducts increase. In these cases we never use chloroform as a general anesthetic; we are afraid of its action on the liver cells. We have been well pleased with the use of hard, round

cushion placed transversely beneath the dorso-lumbar region. One of three operations, choledochotomy, cholecystostomy or cholecystectomy, is usually performed, the type of operation selected depending, in the individual case, upon the location of the calculi and upon the nature of the associated complications. In the extraction of calculi from the bile-ducts, injury of the duct and wall should be avoided. Rather than risk this, the incision in the duct should be prolonged.

If the calculus or calculi are in the hepatic or common bile-duct, their removal is effected by incising the common duct; drainage is instituted through this incision (hepatic drainage).

Recovery followed in the three cases (Bosse two, Ploger one) in which this was done. Rissmann successfully removed a calculus from the duodenal end of the common duct by incising the anterior and posterior duodenal wall. In the cases in which stones were present in the gall-bladder and in the common duct the performance of a cholecystotomy and a choledochotomy at one sitting, plus the institution of hepatic drainage, gave satisfactory results. (Bosse, Mack, Neu, etc.) Roith, in a case in which stones were present in the common duct, removed the gall-bladder, then incised the common duct and drained through the latter. Recovery. Davis, in a patient seven months pregnant, performed a cholecystectomy. Forty-five days later the uterus was dilated manually and a premature fetus was extracted. In all of the other cases a cholecystostomy was performed. Finkelstone, in his case, did a cholecystostomy; one year later he performed a cholecystectomy. In some cases, owing to the co-existence of other pathological states, additional operative work was done. There were two deaths (Graham, Peterson) in the series of cases under consideration. In Graham's case the patient, at time of operation, had a general peritonitis from her ruptured gall-bladder. In Peterson's case there was considerable blood oozing (the coagulation time of the blood was seven minutes), and there developed acute post-operative suppression of urine. In those cases of gall-stone disease in which other pathological states were present, appropriate additional operations were performed. Erdmann, in his case did a cholecystostomy and an appendectomy. Brothers, in one case, removed 205 gall-stones, excised one inch of the left tube to induce sterility, and did a right salpingo-oöphorectomy for an existing right tubal gestation.

There is a wide difference of opinion as to which operation, chole-

cystostomy or cholecystectomy, is indicated in gall-stone disease. Some operators almost invariably perform a cholecystostomy; others equally competent believe that cholecystectomy is the most universally applicable operation for the cure of cholelithiasis. Others do as Kummel, who says, "We remove the gall-bladder when we must; we save it when we can." It is well to select the operation which can be performed in the shortest possible time consistent with the existing conditions of the biliary passages. After cholecystectomy, redrainage of the biliary passages may prove extremely difficult and dangerous. The advocates of cholecystectomy claim that the removal of the organ takes away the possibility of stones being left behind, being reformed, that it removes an inflamed organ.

It is agreed that cholecystectomy is attended with more technical difficulties than cholecystostomy. It requires greater care to avoid injury to the bowels, vessels and main bile-ducts. It is wiser to choose the safer operation until the technic of the more complicated one has been mastered.

Cholecystostomy is the operation of election:

1. Whenever the patient's condition is so bad that the difficulties attending a cholecystectomy render its performance unsafe.
2. When the gall-bladder is not seriously damaged and when the cystic duct is not ulcerated or narrowed by stricture. It is believed that the gall-bladder has some other function than that of a mere receptacle of bile.
3. When the common duct is strictured.
4. If jaundice and pancreatitis complicate the gall-stone disease.

Cholecystectomy is indicated:

1. For very thick, acutely inflamed or gangrenous gall-bladders in which a stone is impacted in the cystic duct.
2. For chronically thickened gall-bladders. A thick-walled gall-bladder which has become functionless should always be removed. When the gall-bladder becomes thickened and hardened from long-continued inflammation it is manifestly impossible that it should dilate, no matter what obstruction there may be in the common duct.
3. For large gall-bladders distended with clear fluid and resulting from the impaction of a stone in the cystic duct.
4. For the "strawberry" gall-bladder (chronic thickening with ulceration).
5. For a calculous gall-badder adherent to the stomach, intestine or omentum.

6. When the walls of the gall-bladder are so modified by disease that neither the storage nor the expulsion of bile is possible.

#### SUMMARY.

1. Gall-stone disease occurs with far greater frequency in women than in men; with far greater frequency in women that have borne children than in women that have remained sterile. Its period of greatest incidence is the child-bearing period.

2. Gall-stone disease, alone or associated with one or more other related or non-related pathological states, not uncommonly complicates a pregnancy otherwise normal or abnormal.

3. The first manifestations of cholelithiasis may date from the existing gestation or from a previous pregnancy; may precede, coincide with or follow an abortion or premature labor, accidental or induced.

4. All conditions that are associated with, that favor or cause (*a*) bile stasis, (*b*) inflammatory or degenerative changes involving the gall-bladder or bile tracts, (*c*) pathological alterations in the composition of the bile, such as hypercholesterinemia, etc., predispose to gall-stone disease.

5. Pregnancy is an important etiological factor in the causation of cholelithiasis.

6. The pathology of gall-stone disease complicating pregnancy is the pathology of gall-stone disease occurring in the non-pregnant. There may be present: (*a*) An inflammation of the gall-bladder or bile-ducts in which one, two or many calculi are lodged or impacted; (*b*) a distention of the gall-bladder or bile-ducts by mucus, pus or calculi; (*c*) a pericholecystic inflammation, calculous in origin, leading to adhesion formation, to fistula formation, etc., and corresponding disturbances of function; (*d*) changes in the liver; (*e*) changes in the pancreas.

7. Some of the symptoms of gall-stone disease are due to the irritation inherent to the presence of gall-stones, to their migration through or impaction in the bile-ducts or neck of the gall-bladder. Other symptoms are due to the concomitant inflammation of the gall-bladder, bile-ducts and neighboring organs, causative of or resulting from the presence of calculi.

8. Rupture of a gall-bladder distended by calculi, by fluid, mucus or purulent in nature, can occur during gestation or during or immediately after labor.

9. In the differential diagnosis of this condition, one should bear in mind: (*a*) That not infrequently gall-stone disease originates during or may complicate pregnancy; (*b*) that cholelithiasis and cholecystitis, owing to their reflex symptoms, are often mistaken for gastric disease; (*c*) that appendicitis and gall-stone disease frequently co-exist; (*d*) that digestive disturbances associated with acute pain and tenderness in the right hypochondriac region, with or without jaundice, with or without symptoms of biliary colic, are in themselves ample justification for operative exploration of the gall-bladder and ducts.

10. Cholelithiasis is a surgical disease; it calls for operative relief. Medical measures in this disease are merely palliative; appropriate surgical measures are curative.

11. Gall-stone disease in itself is never an indication for the artificial termination of pregnancy.

12. Whenever, for some cause or other, the abdomen is opened in women of the child-bearing age or past the child-bearing period, the gall-bladder and larger bile-ducts should be examined if it can be done (*a*) without or with only slight traumatizing of the tissues; (*b*) without exposing the patient to too much additional risk; (*c*) without contaminating clean peritoneum. Should the patient give a history of chronic digestive disturbances, the indication is absolute.

13. Women exposed to pregnancy, suffering from calculous cholecystitis or any other form of gall-stone disease, should be operated, the calculi removed and the gall-bladder drained.

14. Pregnancy does not contraindicate operations upon the gall-bladder or bile tracts. Peterson reported only three miscarriages in twenty-three reported operated cases. In only one (Roith) of the cases which we considered, did abortion follow the operation.

15. It has been repeatedly demonstrated that the operative relief and cure of cholelithiasis does not unfavorably influence gestation, does not unfavorably influence parturition. Icterus, whether acute or chronic, is a constant menace to the fetus.

16. Early operation is now, in proper hands, a safe procedure. It is an effectual cure of the symptoms produced by gall-stones; it has a low mortality and guarantees against serious complications in the future.

17. Cholecystostomy, cholecystectomy and choledochotomy have been successfully performed upon pregnant women for the relief

of gall-stones. After these operations, drainage is to be employed until the bile ceases to flow spontaneously through the wound, until complete subsidence of whatever degree of cholangitis existed.

18. The prognosis of operative intervention is not unfavorably influenced by the existence of pregnancy.

19. In persistent gall-bladder disease, trouble-changes in the urine manifested by the presence of casts and albumen are not uncommon and are not necessarily a bar to operative interference.

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**SPINAL ANALGESIA, WITH A NEW LOCAL ANESTHETIC.**

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In operations for various genito-urinary and rectal affections it has been the writer's custom for many years to employ spinal analgesia as the one of choice. Not only is this method of analgesia all that can be desired, but the patient is free from the danger of the immediate and after-effects of ether narcosis. Until the last two months I have given tropococain the preference in spinal analgesia, but due to the fact that this chemical was difficult to obtain, and the small quantity which was supplied me seemed to be inferior in quality, I determined to give a comparatively new agent for this purpose—apothesine—a trial.

Being assured that apothesine was low in toxicity and knowing that dentists had used it successfully in conduction anesthesia, I could see no reason why it would not fulfill other requirements for spinal analgesia. Accordingly, on August 22, 1918, the following operation was performed, using apothesine, at the Charity Hospital Clinic:

Patient, Ernest Turner, colored, male, age 47. Carcinoma of the penis, sixteen months' duration. Patient was injected intraspinally between the fourth and fifth lumbar vertebræ with one and one-quarter grains apothesine dissolved in 2 c. c. of sterile normal salt solution. Injection was made at 9:25. At this time pulse was 90, respiration 19. Regional analgesia was complete at 9:30 and the operation was begun. Operation consisted in amputation of the penis and removal of the inguinal glands. Time of the operation, one hour and thirty minutes. Analgesia throughout was perfect and the patient left the table with pulse 85, feeling fine. There were no after-effects, such as headache, etc.

Since that time I have performed the following operations, using apothesine as an analgesic: Two herniotomies, two vesico-vaginal fistulæ, four hemorrhoids, two internal urethrotomies, two prostatectomies, one cystotomy, three inguinal adenonectomies, three rectal fistulæ, one hydrocele, one nymphectomy, two internal proc-tectomies.

Analgesia has been perfect in all operations, lasting to the completion of each operation, the longest of which was one hour and fifteen minutes. Analgesia began within ten minutes, except in the inguinal adenonectomies and herniotomies, in which the analgesia was delayed for four or five minutes, due to the length of

time necessary for the diffusion of the analgesic to the iliohypogastric and ilioinguinal nerve roots.

The highest point of injection was between the eleventh and twelfth dorsal and the lowest between the fourth and fifth lumbar vertebræ. There were no after-results attributable to the analgesic in any case.

The use of apothesine in the above number of operations, twenty-four in all, has led me to believe that apothesine is a superior analgesic for this purpose and has the further advantage that it may be boiled for a short length of time without impairing its value.

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## PRESENTATION OF AN OBTURATOR.\*

By A. G. FRIEDRICHs, M. D.

Dr. Friedrichs presented a case of congenital cleft-palate which was corrected by an obturator. The opening in the palate and velum was closed by an artificial apparatus, carrying the missing teeth and closing the aperture in the palate.

The case presented is a child of seven. Dr. Friedrichs stated that operative procedure is always recommended and, when the deformity cannot be remedied by operation, an obturator is the method by which these defects of development can be corrected. In all cases of congenital cleft, phonation, mastication and deglutition are interfered with. With the application of this apparatus all these defects are corrected. This obturator, which is here presented, returns the parts to their normal relation, affording the patient ability to masticate her food, an opportunity to correct her phonation and swallow her food without difficulty. This matter of speech is a matter of education and, should this child be properly taught, all evidence of difficulty and defect of speech can be cured. This obturator carries four front teeth, which hold out the lips and thereby restore the symmetry of the face. In these cases, taken early, as in this case, all the defects I have above referred to will be removed, and as she develops, and when she grows up, she will look and speak like any other normal child.

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## DISCUSSION ON THE PAPER OF DR. FRIEDRICHS.

**Dr. T. J. Wolfe:** How long would this particular apparatus last without renewal?

**Dr. Friedrichs:** This, in its present condition, would probably last a year and would have to be renewed from time to time as the exigencies of the condition would require.

Thinking the inclemency of the weather would prevent the appearance of my patient, I brought down a number of plates showing a fracture of the inferior maxillary and its treatment. [These were produced.]

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## THE WOUNDS OF WAR FROM THE BIOLOGIST'S POINT OF OBSERVATION.\*

By ERNESTO BERTARELLI, Professor of Hygiene, University of Parma.

Translated for the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL  
by LODILLA AMBROSE, Ph. M., New Orleans.

[993] The literature of medicine has not been miserly of writings concerning the wounds of which the war with incredible generosity has made a gift to man. All the other paragraphs of the observations made in this vast theater of pains and of death are still in the initial stage of compilation: the epidemiologist, for example, who is the student of the *then*, is a little of a posthumous observer; the surgeon—if he has spoken quickly just as he has operated quickly—has been able to recount little enough that was new, and abides his time for the macabre numerical summary of the extremities amputated, of the vertebræ damaged, of the cavities penetrated.

The bacteriologist, the biologist, on the contrary, has had a good hand at war's gaming table. From the first roar of the artillery, a material new and in part unexpected, has presented itself for study. The study evidently concerned the physician and the biologist: the eye of the former rested on the returns—apparently beyond the power of thought to conceive—from the gaseous edemata to the vast necroses, to the wounds long ago collected in the spiritual museums of remembrance. The latter had material for searching out the cause of the foul wounds, the mechanism of the vast crepitant destructions.

While we scarcely get a glimpse of other pictures of the war as

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\*Bertarelli, Ernesto. Le ferite di guerra dal punto di osservazione del biologo. *Gazz. d. Osp.*, Milano, 1916, xxxvii, 993-994. [The pages of the original article are given in square brackets.]

viewed with the eye of the physician, while we scarcely draw up the first summaries as the basis for eulogy or suspicion regarding vaccination against typhoid and cholera, it is evident that the paragraph of the wounds of war presents itself to the understanding. It is not merely the physician and the biologist who are interested in these wounds, but behind him who coldly reasons as to the causes of the evil, as to the intimate mechanism of the damage, stands the hosts of the new trembling ones who ask whether the defense will be possible, whether the advent of the useful will quickly accompany the knowledge of the facts.

And the biologist, even before he pronounces on the nature of the evil, may postulate a beautiful corollary which the last months of war have made clear; and that is, that one of the sad phenomena of war is already conquered by the work of man. And while war tetanus grows less and less every day, thanks to the prompt intervention with serum in the wounded, we are present at this magnificent spectacle of thousands of wounded men without the appearance of a single case of tetanus.

The phrase, "wounds of war," verily says little enough to the biologist and to the bacteriologist, since a wound of war is, *per se*, every lesion caused by gunshot and by cutting on the field of battle.

However, to wounds of war we may give, even if only abstractly, a more restricted signification, and in accordance with the thought assign it to soiled wounds, to continuous lesions determined by the splinters of shrapnel.

Hence, wound of war in this more restricted and, if you like, inappropriate sense, will mean a wound contaminated, infected. The germs of the infection are varied in the different cases; sometimes it may be a question—and these will be exceptional cases—of the bacillus of tetanus; more frequently it will be the *Bacillus perfringens*\* to which belongs the function of determining gaseous gangrene (or phlegmon); again another time it will be the bacillus of malignant edema. And to this list should be added germs of different species, from cocci to anaërobes; very recently these have been described as truly less terrible for the wounds than those already mentioned. but still they are always a menace to the benign healing wound.

But actually the suppurations from pyogenic cocci, which are disseminated in all the external world, and thus may at any in-

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\*Continental synonym for *B. aerogenes capsulatus*.—Dorland.

stant come in contact with the skin, and hence with the wounds (indeed the part which belongs to the cocci including the pyogenic ones in the flora which surrounds the wounds is considerable) are much less important and threatening than a botanical logic would permit us to believe. Frequently, even in soiled wounds, suppurations are absent; and in any event the therapy practiced to-day offers a very vast guarantee of holding back the process of supuration.

More important quite for the course of the wounds and for their prognosis are the other germs mentioned.

There is no longer occasion for talking about the bacillus of tetanus: its history, its relative frequency in the external world, its activity when it arrives in the tissues, the conditions which maintain and accelerate its activity, are so well known and studied that it is not worth our while to return to it. At the most, there remains some uncertainty as to the diffusion in nature of the spores of tetanus and as to the varying frequency with which these are encountered and come in contact with possible wounds. But the documents which we possess do not now permit the drawing of any conclusion on the subject, even if there seems to be foundation for the suspicion that in any given locality there may be a very special frequency of the tetanogenic spores and consequently of wounds followed by tetanus.

Another established fact is the part that belongs to the *Bacillus perfringens* in gaseous gangrene. The strains of perfringens, as described up to the present time, represent some unities identical among themselves, with slight differences of form and of cultural aspect, and this apparently may approve the concept that it by itself does not in reality constitute the cultural strain.

Is the perfringens exclusively sufficient for determining gaseous gangrene, or are other germs necessary? The abundant but fragmentary literature of the bacteriology of war does [994] not render the response easy. The greatest part of the French authors (the largest contribution to the study of perfringens emanates from France) permit an affirmative belief; likewise, in the animals, the most extensive anatomical lesions which suggest well the morbid picture in man are obtained by employing solely the strain of perfringens.

And sometimes, on the other hand, the only finding observed in the tissues of the gaseous phlegmon is constituted by the perfringens.

That in actual practice there are frequently observed microbic associations in the wounds of war which proceed badly to recovery is true, but one may not on this account exclude this fact, that the perfringens by itself is capable of producing vast necroses.

With all this, we do not come to the point of saying that the *Bacillus perfringens* is a definite pathogenic agent capable of producing a typical lesion, as we say, for example, of the cocci of suppuration, although we know that suppurations are not always produced by the pyogenic cocci. It may happen most frequently that the perfringens does not figure in the treatises as a pathogenic germ, at least, not with the same right and the same measure in which the *Bacillus coli* figures; but, in fact, it may well be doubted whether this arises from an erroneous estimate or from an almost general forgetfulness, which the present findings of war will be valuable in causing to disappear forever.

Again, it is difficult to succeed in the exact evaluation of the part which the bacillus of malignant edema takes in gaseous gangrene.

First of all, it is doubtful, and a subject of controversy, whether there exists a single species or a single strain of the bacillus of malignant edema, or whether, on the contrary, there are several varieties or strains. Two recent communications to the Société de Biologie (and also an unpleasant controversy over a question of priority) would lead to the thought of the existence of various strains, or at least of some subspecies of the bacillus of malignant edema.

In the second place, it becomes truly difficult to evaluate in all its scope the part which such a germ (whether this is traced back to a single strain or whether divers subspecies should be grouped around it) must take in the various forms of gaseous gangrene. In some reports frequent symbioses are mentioned: on the contrary, the experimental data of Sapégnée lead us to think that by itself the germ under discussion can produce extended gaseous necroses with crepitant edemata. Certain it is that this whole chapter is under revision to the degree that it has been possible to attain in this enormous and cruel experiment that we call war.

The biologist arrives at the conclusion that the scholastic pictures shown until yesterday as negatives of the infections do not suffice to explain such wounds of war as attract our attention to-day at every step; not only have some germs (by all I believe the perfringens) been taken into scanty consideration while they deserved

so much of it, but also new pictures and extensions of old conceptions must be made in order to render fairly comprehensible the pictures of the infections of war.

The documents are numerous from French and German sources: as for us, we lack the time and the practical possibility for emulating the others in this rivalry of knowledge, and, while bespeaking good Italian contributions, it is not easy to think that these will come forth abundantly. Certainly, to-morrow, on the basis of the facts ascertained in these days, a paragraph of the infection of wounds will necessarily be entirely rewritten.

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## NEWS AND COMMENT

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ORLEANS PARISH MEDICAL SOCIETY NAMES OFFICERS.—The following have been nominated and endorsed for officers of the Orleans Parish Medical Society, who were voted upon on December 14, 1918: President, Dr. H. E. Bernadas; vice-presidents, Drs. W. J. Durel, A. Eustis and T. J. Dimitry; secretary, Dr. Lucian Landry; treasurer, Dr. F. M. Johns; librarian, Dr. H. E. Nelson; additional members Board of Directors, Drs. P. J. Gelpi, F. R. Gomila and W. H. Knolle.

OUACHITA PARISH MEDICAL SOCIETY MEETING.—On December 27, 1918, the Ouachita Parish Medical Society held its annual meeting in Monroe, La., and elected the following officers for the ensuing year: President, Dr. J. Q. Graves; vice-president, Dr. T. W. Wright; secretary-treasurer, Dr. F. C. Bennett; Dr. R. W. Faulk, delegate to the next meeting of the State Medical Society (Dr. R. W. O'Donnell, alternate). A banquet was served at Leon's after the close of the meeting.

SOUTHERN SURGEONS ELECT.—At the thirty-first annual meeting of the Southern Surgical Association, held in Baltimore, December 18 to 20, the following officers were elected: President, Dr. J. E. Thompson, Galveston, Texas; vice-presidents, Dr. Charles R. Robins, Richmond, Va., and George A. Hendon, Louisville, Ky.; secretary, Dr. Hubert A. Royster, Raleigh, N. C. (re-elected), and treasurer, Dr. Guy L. Hunner, Baltimore (re-elected). New Orleans was selected as the next meeting-place.

LIST OF PHYSICIANS ENGAGED IN INDUSTRIAL MEDICINE.—Dr. Francis G. Patterson, Chief, Division of Industrial Hygiene and Engineering, Department of Labor and Industry, Harrisonburg, Pa., is desirous of obtaining a complete list of all physicians engaged in the practice of industrial medicine, in order that they may attend the 1919 conferences of Industrial Physicians and Surgeons, which conferences have been held semi-annually for several years. The attendance is usually good at these conferences and a great deal of valuable matter is presented in the discussions.

A. DRUG EPIDEMIC IN LONDON.—According to a special cable dispatch from London to the *New York Sun* some weeks ago, a drug epidemic of the worst nature broke out in London, and the existence of an organization disseminating this vice was unearthed. Men as well as women, and many soldiers, were victims of the drug craze.

COMMITTEE TO STUDY INFLUENZA.—After a long discussion, in which opinion was about equally divided as to the value of certain practical measures for the prevention of the spread of influenza, the American Public Health Association, at its closing session in Chicago, December 13, appointed a committee of five to consider the question.

AMERICAN OFFICERS OF SUPERIOR INTELLIGENCE.—The division of psychology of the Medical Department of the Army reports that, according to its tests, 83 per cent of the officers in the American Army had the "superior intelligence" required for a commissioned officer. Of the National Draft Army, less than  $2\frac{1}{4}$  per cent were found to be so deficient in intelligence that they were recommended for discharge. To obtain these averages, tests of numbers of men were made at every camp in the United States. Only half of one per cent of 1,500,000, who were given the mental tests, were found to be so deficient in intelligence that they were recommended for discharge.

SPANISH EDITION OF THE JOURNAL OF THE A. M. A.—The American Medical Association began in January the publication of a Spanish edition of its journal. The problems of a closer relationship between South American Republics and the United States makes the establishment of this publication an important step towards its solution. It is not expected that such an edition will be self-supporting for several years.

A DIRECTORY OF HEALTH AUTHORITIES.—The United States Public Health Service has published a directory of State and insular health authorities, giving the names and addresses of the principal officials and the sums which are annually appropriated for the expenditure of each particular board or organization. Copies may be obtained by applying to the superintendent of public documents, Washington, D. C.

UNITED STATES HOSPITALS TO BE CONTINUED.—Recent advices from Washington indicate that the big United States Army hospitals at Camp Greene, Asheville, Azalea and Waynesville, N. C., will each be continued for the care of overseas returning patients for some time to come.

VENEREAL SUBJECTS' TRAVEL RESTRICTED.—The Surgeon-General of the United States Public Health Service announces, under an amendment to the interstate quarantine regulations, that persons having venereal disease must obtain a permit in writing from the local health officer before they will be permitted to engage in interstate travel. This permit must state that such travel is not dangerous to the public health.

MEDICAL RESEARCH.—The directors of the Fenger Memorial Fund have set aside \$500 for medical investigation. It is desired that the work shall be of direct clinical bearing which may be carried out in an established institution which will furnish the necessary facilities and ordinary supplies free of cost. For full particulars, write to Ludvig Hektoen, 637 South Wood street, Chicago. Besides the Fenger Fund, Harvard University Medical School, the College of Physicians and Surgeons of Columbia University, and Johns Hopkins University have been benefited by the will of James Raphael Lamar, who bequeaths his residuary estate, estimated at \$10,000,000, to the above medical institutions for medical research into the cause of diseases and into the principles of correct living, for the study and teaching of dietetics and of the effects of different foods and diets on the human system, the results of which study shall be disseminated among the people of the United States.

MEETING OF NATIONAL SCIENCE SOCIETY.—Representatives of twenty associations of scientific experts from virtually every State attended the meeting of the American Association for the Advancement of Science at Johns Hopkins University on December 26,

1918. The annual address was delivered by Dr. Theodore W. Richards, of Harvard University, the retiring president.

**INFLUENZA A WORLD PLAGUE.**—According to a writer in the *London Times*, 6,000,000 persons throughout the world perished from influenza and pneumonia during the last several months. It is estimated that the war caused the death of 20,000,000 persons in four and a half years, showing that influenza has been, proportionately, almost four times deadlier than the war.

**ANONYMOUS GIFT TO TOURO INFIRMARY.**—The Touro Infirmary, of New Orleans, recently received the gift of \$25,000. The name of the donor was withheld.

**PRESBYTERIAN HOSPITAL GRADUATES NURSES.**—The graduating exercises of the class of 1919 of the New Orleans Presbyterian Hospital Training School for Nurses took place on January 14 in the Corinne Casanas Building. A short program followed the presentation of diplomas, after which a reception was held for the nurses.

**REMOVALS.**—Dr. W. H. Pope, Jr., from Trinity to 480 Lile street, Beaumont, Texas.

Dr. J. E. Evans, from Fulton to 901-2 Van Antwerp Building, Mobile, Ala.

Dr. M. R. Cushman, from Baton Rouge to Prairieville, La.

Dr. H. R. Shands, from Jackson, Miss., to Colorado Springs, Col.

Dr. Willis Walley, to 212½ West Capitol Street, Jackson, Miss.

**MARRIED.**—On December 26, 1918, Dr. Frank Theo. Beatrous, of New Orleans, to Miss Grace Phyllis Hayne, of Boyce, La.

On January 9, 1919, Dr. Charles J. Bloom, of New Orleans, to Miss Gladys Marie Reiss, also of this city.

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BOOK REVIEWS AND NOTICES

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*All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

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**The Principles of Hygiene**, by D. H. Bergey, A. M., Dr. P. H. Sixth edition, thoroughly revised. W. B. Saunders Company, Philadelphia and London.

The continued demand for this work is an excellent argument for its merit. With the new edition brought up to date by careful revision, its popularity should continue. The large experience of the author as a teacher has given added value to the work as a textbook. The chapters on military hygiene are only too brief. Its importance should invite more space to this field.

DYER.

**A Treatise on Clinical Medicine**, by William Hanna Thomson, M. D., LL. D. Second edition, revised. W. B. Saunders Company, Philadelphia and London.

It is certain that the very practical character of this book will find welcome among the practitioners of medicine, while the discursive method discounts the usefulness as a textbook. The author, with large experience, has incorporated much of this. Unfortunately, where he lacks experience, there is too much tendency to be dogmatic, and some times to show real ignorance. For example: "There is no treatment for leprosy, though injections of Calmette's antivenomous serum have been reported as actually curing the disease." One who may be familiar with a disease will scan the pages of a new text for a more modern viewpoint, and it is astonishing to have such a statement as the conclusion to the article on leprosy. The reviewer, as the author of the use of Calmette's antivenomous serum in leprosy, obtained amelioration in these cases, but discontinued the treatment as of less service than other remedies which did cure. It is worth remarking that the successful use of chaulmoogra oil at the Louisiana Leper Home and in the Philippines is too well known to have been wholly ignored by any modern textbook.

This particular lapse on the part of the author mars an otherwise serviceable book, but perhaps even this should not be taken too seriously, when the same fault is common among writers in this country, where the utilitarian features of contributions to medical literature often sacrifice the need for exact or complete statement.

DYER.

**Clinical Diagnosis. A Manual of Laboratory Methods**, by James Campbell Todd, M. D., Professor of Pathology, University of Colorado. W. B. Saunders Company, Philadelphia and London, 1918.

The author presents in this, the fourth edition of *Clinical Diagnosis*, revised and reset, one of the very useful laboratory guides, both for students and practitioners. The various laboratory methods are stated clearly and concisely. Many of the newer tests are included, among them

the use of colorimeters and of the pocket spectroscope and methods of matching blood for transfusion, the fractional method of gastric analysis, vital staining of blood corpuscles, the mastie reaction in the spinal fluid, and many others. One chapter is devoted to serology.

The illustrations are descriptive, and there are four color plates new in this edition.

The book is an excellent addition to any medical man's library and is certain to prove a most satisfactory guide for medical students.

ELIZABETH BASS.

**Johnson's Standard First Aid Manual**, edited by Fred. B. Kilmer. Johnson & Johnson, New Brunswick, N. J.

This is the eighth revision of a simple, yet comprehensive, first aid manual intended to convey in a serviceable shape the information needed by those who wish to be posted in emergency or first aid treatment. The editor has had the suggestions and assistance of many who labor in the field of first aid. It is brought up to date, liberally illustrated and becomes a standard authority on first aid.

C. C.

**Diseases of the Heart and Blood Vessels**, by Thomas E. Satterthwaite, M. D. Lemeke & Buechner, New York City.

The first chapter emphasizes the importance of general methods of diagnosis, including careful history-taking. The author seems to think that works on diagnosis have not accorded sufficient notice to Sahli's band. He admits, however, that "its significance has not yet been established." As to the Carrigan pulse, we are of the same opinion as the author—i. e., that it has been overestimated as one of the most characteristic signs of aortic insufficiency.

Thayer is cited as finding, on "autopsical examination of twenty-eight persons with aortic insufficiency uncomplicated by mitral stenosis in the Johns Hopkins Hospital, that in fourteen there had been no Carrigan pulse."

The author is discouraged by the fact that the polygraph and the electrocardiograph, along with the sphygmograph, are not of any great help in the differential diagnosis of valvular diseases. As to the phonocardiograph, he remarks that it may eventually be an aid, but thus far the tracings it has furnished have been disappointing.

In the paragraph on "Inorganic Murmurs," a great variety of conditions as to their causes are briefly summarized.

The importance of the venous pulse in furnishing information concerning the character of cardiovascular movements is commented upon. The terms "auricular flutter," "auricular fibrillation," and "ventricular fibrillation" are defined and explained.

Chapter II is on the "Venous Pulse." Chapter IV treats of "Arterial Blood Pressures." In regard to the sphygmomanometer, the author remarks: "The difference between the readings of the best modern instruments are usually so small that they are negligible, for the most part, clinically."

The most extensive chapter in the book is on the "Endocardio-pathies," and the subject is well covered.

Chapter VI treats of "Cardiac Arrhythmias." "Cardiac Syphilis" forms the subject-matter of Chapter VIII.

Our own observation agrees with the author's statement that acute

aortitis is occasionally caused by tuberculosis, but much more often by syphilis, both diseases having a special affinity for the arteries.

Under "Graves' Disease," several forms of treatment are cited, each having its champion. Our own experience is that some cases respond to one of the different plans of treatment, while again many cases are not benefited in the least, but require surgical intervention.

Chapter XIV, "Circulatory Disorders and Epilepsy," deserves careful reading.

The author, in Chapter XV, has presented in brief but proper form the best of our present-day views on the subject of "Internal Secretions."

Chapters XVI, XVII, XVIII and XIX deal with "Congenital Affections," "Cardiac Neoplasms," "Cardiac Parasites," "Hygienic and Dietetic Treatment," respectively.

Chapter XX, "On Drug Therapy," shows careful consideration and proves that the author is not a therapeutic nihilist. We are pleased to add our approval to the quotation from the writing of H. A. Hare, that in "a certain number of cases of valvular disease the patient does not require digitalis or any other cardiac stimulant for the relief of his cardiac symptoms, but, on the other hand, in addition to rest, will often be greatly benefited by the administration of aconite, which has the same steadying effect upon the heart, through its influence on the heart muscles in cases of excessive compensation, and it diminishes the overaction of hypertrophy, which is sometimes confused with the tumultuous overaction of ruptured compensation."

The final chapter of the book deals with prognosis. It is generally conceded that the prognosis in cardiovascular disease should be given with caution, as there are many factors which must be considered. Be humane, but also have reserve. We like this book. STORCK.

## PUBLICATIONS RECEIVED

**C.V. MOSBY COMPANY**, St. Louis, 1918.

**Physiology and Biochemistry in Modern Medicine**, by J. J. R. MacLeod, M. B., assisted by Roy G. Pearce, B. A., M. D.

**Mental Diseases**, by Walter Vose Gulick, M. D.

**Information for the Tuberculous**, by F. W. Wittich, A. M., M. D.

**J. B. LIPPINCOTT COMPANY**, Philadelphia and London, 1918.

**Equilibrium and Vertigo**, by Isaac H. Jones, M. A., M. D., with an analysis of pathologic cases, by Lewis Fisher, M. D.

**P. BLAKISTON'S SON & CO.**, Philadelphia, 1918.

**A Compend of Pharmacy**, by F. E. Stewart, M. D., Ph. G., Phar. D.

**Paper Work of the Medical Department of the United States Army**, by Ralph W. Webster, M. D., Ph. D.

**Massage and the Original Swedish Movements**, by Kurre W. Ostrom.

Eighth edition, revised and enlarged.

**A Compend of Genito-Urinary Diseases and Syphilis**, by Charles S. Hirsch, M. D. Third edition, revised.

**YEAR BOOK PUBLISHERS**, Chicago, 1918.

**The Practical Medicine Series.** Under the general editorial charge of Charles L. Mix, A. M., M. D. Volume VI: **Pharmacology and Therapeutics**, edited by Bernard Fantus, M. S., M. D.; **Preventive Medicine**, edited by Wm. A. Evans, M. S., M. D., LL. D., D. P. H.

**PAUL B. HOEBER**, New York, 1918.

**Compendium of Histo-Pathological Technic**, by Emma T. Adler.

**W. B. SAUNDERS COMPANY**, Philadelphia and London, 1918.

**Surgical Treatment.** Volumes 1, 2 and 3. By James Peter Warbasse, M. D.

**WASHINGTON GOVERNMENT PRINTING OFFICE**, Washington, D. C.

**Annual Report of the Surgeon-General of the Public Health Service of the United States.** For the fiscal year 1918.

**Public Health Reports.** Volume 33, Nos. 48, 49, 50 and 51.

**Susceptibility to Hay Fever and Its Relation to Heredity, Age and Seasons**, by Wm. Scheppegrell, M. D.

#### **MISCELLANEOUS:**

**Transactions of the American Otological Society.** Fifty-first annual meeting. Volume XIV. Part III.

**Johnson's First Aid Manual.** Edited by Fred B. Kilmer. Eighth edition, revised. (Published by Johnson & Johnson, New Brunswick, N. J.)

**Fourth Annual Report of the Rockefeller Foundation.** (International Health Board, 61 Broadway, New York, 1918.)

#### **REPRINTS.**

**Recent Developments in Infant Feeding**, by Emile Berliner.

**The Presence of Food Accessories in Urine, Bile and Saliva**, by A. M. Muckenfuss.

## MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for December, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever .....	1	—	1
Intermittent Fever (Malarial Cachexia) .....	—	—	—
Smallpox .....	—	—	—
Measles .....	—	—	—
Scarlet Fever .....	—	—	—
Whooping Cough .....	2	—	2
Diphtheria and Croup .....	—	1	1
Influenza .....	132	35	167
Cholera Nostras .....	—	—	—
Pyemia and Septicemia .....	—	—	—
Tuberculosis .....	54	57	111
Cancer .....	30	5	35
Rheumatism and Gout .....	2	2	4
Diabetes .....	4	—	4
Alcoholism .....	1	—	1
Encephalitis and Meningitis .....	1	1	2
Locomotor Ataxia .....	1	—	1
Congestion, Hemorrhage and Softening of Brain .....	22	12	34
Paralysis .....	1	6	7
Convulsions of Infancy .....	3	—	3
Other Diseases of Infancy .....	12	6	18
Tetanus .....	—	—	—
Other Nervous Diseases .....	4	1	5
Heart Diseases .....	61	36	97
Bronchitis .....	17	3	20
Pneumonia and Broncho-Pneumonia .....	58	41	99
Other Respiratory Diseases .....	1	—	1
Ulcer of Stomach .....	1	—	1
Other Diseases of the Stomach .....	2	—	2
Diarrhea, Dysentery and Enteritis .....	10	10	20
Hernia, Intestinal Obstruction .....	5	2	7
Cirrhosis of Liver .....	6	1	7
Other Diseases of the Liver .....	1	—	1
Simple Peritonitis .....	—	—	—
Appendicitis .....	3	1	4
Bright's Disease .....	30	13	43
Other Genito-Urinary Diseases .....	10	12	22
Puerperal Diseases .....	7	3	10
Senile Debility .....	6	3	9
Suicide .....	4	1	5
Injuries .....	29	11	40
All Other Causes .....	24	18	42
TOTAL .....	545	281	826

Still-born Children—White, 25; colored, 20; total, 45.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per Annum for Month—White, 23.36; colored, 32.43; total, 25.81. Non-residents excluded, 22.72.

## METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure. . . . . 30.12  
Mean temperature. . . . . 58  
Total precipitation. . . . . 8.46 inches  
Prevailing direction of wind, northwest.



# NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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Vol. LXXI

MARCH, 1919

No. 9

## EDITORIAL

### THE CONTROL OF VENEREAL DISEASES.

The Surgeon General of the United States Public Health Service has circularized the medical profession with an appeal for coöperation on the fight against venereal diseases, and emphasis is laid upon the expected increase incident to the discharge of the men in military service.

The circular, among other things, declares that "Physicians have a large share in the responsibility of protecting the nation in this emergency by giving their best scientific attention to individual venereal disease cases. \* \* \* Each member of the medical profession should understand the seriousness of statements frequently

made that a majority of physicians refuse to treat venereal diseases, and that many of those who do treat them are careless in their methods of treatment."

While this statement carries some accusation, it may be admitted as worthy of attention and deserving of action accordingly.

It is all very well to summon the medical profession to meet venereal diseases, and in doing so to arraign them for their shortcomings; but is this the right way to overcome the difficulty?

We are not forgetful of the rather general legislation within the past year, which proposes to penalize the physician who does not report venereal cases, and incident to the process there is provided a measurably difficult system, which entails rather exact care on the part of the physician. To the conscientious man, engaged in general practice and without equipment for the proper care of venereal cases, the honest thing is for him to decline to treat such cases; otherwise he would properly qualify among those who "are careless in their methods of treatment."

All medical men should be willing to help in eliminating venereal diseases, but it cannot be the best way to invite all of them to treat such cases. We are sure it will be acknowledged that the evils which have accumulated upon the human race in consequence of venereal diseases have been due more to inefficient treatment than to anything else. How many men who are not specialists in venereal diseases know how to treat syphilis?

The trouble lies deeper. Not only have venereal diseases been neglected, but the usual source of their origin has put the burden of shame and secrecy so utterly upon such diseases that they are often borne without treatment, through the humiliation entailed. The neglect of such diseases among the lower classes, and among negroes in particular, has provided a continual supply of new contagium.

Within the past two years the free discussion of venereal diseases in the daily press has occasioned reflection among many, to whom such questions were closed. Reforms have followed, stimulated largely by the activities of the military authorities. With the restrictions and regulations relating to venereal diseases, the army and navy have been able to treat all such cases, and with effectual results.

In the meantime, the civic population has undergone a transition from recognized and more or less restricted, even if not regulated,

to clandestine prostitution, with the attending evils certain. For such, as yet, no provisions have been made, save the rather cumbersome regulations laid on physicians to report such cases of venereal disease as may come in their practice.

The United States Public Health Service has very properly undertaken this problem, and it is for them to find and establish a solution, but we believe that a practicable plan should operate, and we believe that the appeal to and arraignment of the profession is not the practicable way. While it may be wise to engage the promise of physicians to either treat or refer to qualified specialists or to clinics such cases, it remains that there is not yet adequate provision at hospital clinics to care for such cases. Even where clinics for venereal diseases are organized, they are chiefly for males and are conducted in a rather mixed fashion. Females are often handled in gynecological clinics, and usually inadequately.

Since the United States Public Health Service has taken an initiative, it should go all the way, in promptly establishing proper clinics, adequately equipped and efficiently conducted, for both males and females. The United States Public Health Service might arrange for space in some of the existing hospitals, but, so long as it is left to the existing hospital administration, in almost every private hospital, large or small, there is more effort made to keep venereal diseases out than to let them in.

Without in any way reflecting on the profession in general, it is safe to say that, with the government operating hospitals and clinics, and with free treatment, it will not be long before results are evident. Meantime, it is the duty of the profession to promise to do what it may be able, under the circumstances.

The question of prophylaxis should not be relegated entirely to the background. The happy results from prophylactic treatment obtained in the army and the navy suggest forcibly that the civic population should be educated and encouraged to resort to it. This is particularly so, as it interferes neither with propaganda in favor of continence, the control of vice, nor with the arguments favoring proper and adequate treatment.

As a legal gentleman, urging this viewpoint, said in illustration: "It is like the honest, but adventurous man, and the gang of thugs. The authorities should try to get rid of the thugs; the man should be urged not to go where they congregate; but, if he either must or will go among them, for goodness' sake urge him to take his gun with him."

## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### THE HISTOLOGICAL AND BACTERIOLOGICAL INVESTIGATION OF A JUXTA-ARTICULAR NODULE IN A LEPER.

By DONALD H. CURRIE,  
Former Director, U. S. Leprosy Investigation Station,  
AND  
HARRY T. HOLLMAN,  
Acting Director, U. S. Leprosy Investigation Station.

#### LITERATURE.

A disease occurring in certain parts of the tropics, notably in New Guinea, Java, Siam, Algiers, Senegambia, Madagascar, New Caledonia and French Guinea, has been described by several authors under the title of "Juxta-Articular Nodules." The accounts of these cases state that the lesions are subcutaneous, hard, painless, round or irregularly-shaped nodules, usually located near one of the joints, especially the ankles or knees.

MacGregor first described this condition in 1901 in New Guinea.

In 1904, Steiner reported the occurrence of similar cases among the natives of Java.

In 1906, Jeanselme reported similar tumors among the natives of Siam. This author stated that the microscopic examination of these tumors showed that they were formed of three layers: a central zone, composed of degenerated tissue; an outer zone of inflammatory reaction, and an intermediate or transitional zone.

Gros, in 1907, reported on this, or a similar, condition among the Algerian natives, after having observed some ten cases among 12,000 patients examined. He further reported that, histologically, these lesions were of a structure similar to those reported by Jeanselme.

Neveux, in 1907, reported cases from Senegambia, and Fontoynt and Carougeau, in 1908, from Madagascar. They drew attention to the symmetrical occurrence of the nodules and stated that they usually occurred on the extensor surfaces of the extremities and in the neighborhood of joints, especially the superficially located joints,

such as the elbow. Fontoynt and Carougeau found that the tumors were either fibrous or fibro-cartilaginous, with soft caseous centers, and showing here and there small white granules consisting of microscopical filaments and mycelium of a fungus. The latter they named "*Discomyces carougeani*." They found that this fungus was not pathogenic for monkeys, rabbits or guinea-pigs.

Lebœuf, in 1911, reported four cases of this disease in New Caledonia.

Joyeau, in 1913, stated that similar tumors were observed among the natives of French Guiana, although the microscopical picture differed in some essential points from that given by previous reports. In the experience of this author, these tumors consisted of a ground substance of fibro-connective tissue containing inflammatory foci, the latter being around the blood vessels. This observation is interesting, as the histology of the tumor which we shall later describe corresponds to Joyeau's rather than Jeanselme's or Carougeau's description.

In 1913, Ouzilleau described this condition.

In 1915, Breiul and Davis each made independent reports on cases of this disease.

In 1916, McCoy and Hollmann described a case observed in Hawaii.

#### DESCRIPTION OF CASE.

Patient, M. K. (1): Hawaiian, male, age 46; married. Born and spent most of his life in one of the small towns on the Island of Molokai, outside of the leper settlement. During his early adult life he was a fisherman in the part of Molokai referred to, but for the last twelve years he has been employed as a road laborer in Honolulu. His first symptoms of leprosy developed three years ago, beginning with paralysis of the eyelid and right arm; later the fingers of the right hand became contracted. While his clinical symptoms are such as to leave little doubt that he is suffering from the nerve type of leprosy, the bacillus of Hansen has not yet been demonstrated.

As to the nodules—the condition which interests us here—both are located on the left lower extremity (See Fig. 1\*): one just over the outer maleolus and the other on the anterior aspect of the ankle at a level with the first. The lesion located over the maleolus began six years ago and is approximately one by one centimeter in area

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\*Not the case previously described by McCoy and Hollmann.

and about one centimeter in elevation above the surrounding normal skin. The second lesion began thirty-six years ago. At the end of five years it had reached the size of a pea, while ten years from the time it was first noticed it had attained its present dimensions (it being slightly larger than the first lesion); since then it has remained stationary in size. The tumor has never been painful, and until recent years it has not caused the patient any inconvenience, since, in the early part of his life, he went barefooted.

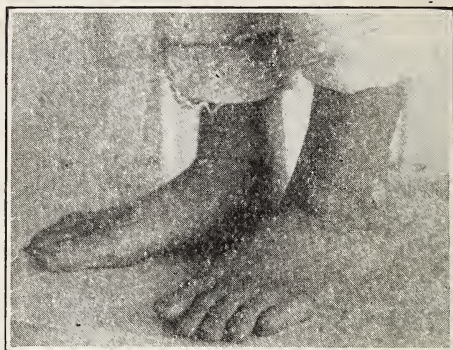


Fig. 1—Photo of Juxta-Articular Nodule in Leper.

One of the two tumors was removed, under aseptic precautions, and placed in a sterile Petri dish. Numerous scrapings were taken from the surface of this tumor and carried to nutrient glycerin agar slants in order to ascertain whether our technic in removing the growth had prevented contamination of its surface. All of these control-agar tubes remained sterile. Under the most rigid asepsis the tumor was cut into several bits, and two of these pieces were placed on glycerin agar slants, with their cut surfaces in contact with the surfaces of the media.

Although, as previously stated, the technic in handling this material was, we believed, above question, and although the scrapings from the surface of the material which were carried on agar produced no growth, the cut surface of the specimen produced a mold-like growth, which began on the tissue itself and spread with difficulty to the surrounding media, leaving no doubt in our minds that it grew from within the tissue and was present in it at the time it was removed from the patient. This mold, belonging to the genus *Aspergillus*, at first occurred as a white, slowly-extending carpet over the surface of the medium; later it assumed a dark green hue, and finally turned violet in color. After one or two generations it grew readily on all the ordinary laboratory agar media, including the more ordinary sugar agars. It grew rapidly at incubator temperature only, and did not grow at all below 56° Centi-

grade. The changes in appearance and color of the mold were identical with that of *Aspergillus fumigatus*, as was its behavior in regard to temperature, with the exception that, instead of changing from a dark green to a snuff color at the time of maturity, it turned to a dark violet, as mentioned above. We are unable to classify this mold, except as to its genera. It differs from *Aspergillus fumigatus* in apparently not being pathogenic to guinea-pigs, although the inoculated animals are still under observation. In this respect it resembles the fungus mentioned by Fontoynt and Carougeau, but, as we have not at hand their description of the cultural peculiarities of this microörganism, we are unable to say whether it is identical or not.

Some of the tissue was placed in Orth's fixing fluid, fixed, dehydrated, cleared in the usual manner, and embedded in paraffin. These specimens were sectioned and stained by a number of methods and the histology of the tumor was examined. We found that a great mass of the tumor was composed of dense, fibro-connective tissue. The structure was not, as some have described in their cases, arranged concentrically, nor was there observed either a central or an outer zone of different make-up. There was no suspicion of caseation in any part of the specimen, but scattered here and there, in the most irregular manner, were numerous small arteries and veins, with their walls greatly thickened, and surrounding each of these small vessels there were irregularly-shaped areas, which showed round-cell infiltration, as well as the presence of large lymphoid cells and spindle cells in places where organization of the connective tissue had begun to take place. A few other large cells, suggestive of giant cells, were observed occurring in nests containing several of these large cells surrounded by fibrils of connective tissue. Neither acid-fast nor other bacteria were observed in the specimen, with the possible exception that in the inflammatory areas there were a few slender, branching fibers, which suggested some of the higher fungi; but on this point we could not be certain. No mold spores were seen in the tissue.

#### CONCLUSIONS.

In examining the literature on this subject there appears to be a condition met with in certain parts of the tropics in which fibromata-like nodules occur; these nodules have the gross appearance of *molluscum fibrosum*, but differ, clinically, in being confined to the

neighborhood of joints, in being few in number and sessile. The question is whether the descriptions refer to one or two entities—whether the histology, as described by one author, of three zones, including a central one showing caseation, and the histology described by another author of a fibroma-like mass with inflammatory foci around the blood vessels, is one and the same condition. If there are two such entities, it would appear that the case described by us is to be classed with the one described by Joyeau rather than Jeanselme's type. On the other hand, we, like Fontoynt and Carougeau, have grown a fungus from our specimen under conditions that would seem to exclude the probability of its being an accidental contamination. It might be pointed out, as having some bearing on the subject, that, if our nodules are to be classed with those of certain authors, it will destroy the theory of Davie (who appears to believe that this condition is the "tertiary stage of yaws"), because of the fact that yaws does not exist in the Hawaiian Islands.

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## ANTITYPHOID SEROTHERAPY: PREPARATION OF THE SERUM.\*

By A. RODET, Professeur de Microbiologie, Université de Montpellier.

Translated for the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

by LODILLA AMBROSE, Ph. M., New Orleans.

[83] Having taken up, jointly with Chantemesse, the problem of the serotherapy of typhoid fever, I have arrived, after much groping, at results which to-day seem to me worthy of occupying the attention of the Academy.

\*Rodet, A. Sérothérapie antityphoïdique; préparation du sérum. *Bull. Acad. de méd.*, Paris, 1916, 3. s., lxxvi, 83-85. [The pages of the original article are given in square brackets.]

The preparation of a serum which can be used as a remedy for typhoid fever is a delicate thing. An experimental study of long duration, pursued first by Lagriffoud, has convinced me that the serum of an immunized animal may be endowed with a high degree of specific properties with reference to the bacillus of Eberth, and still be without therapeutic value, or even injurious. And I have been led by degrees to group together a series of conditions—all indispensable to the result sought—for the preparation and maintenance of the horses furnishing the serum. These are not simply [84] the choice of the immunizing substance and the avenue of introduction, which have a primary importance, but also various details constituting, so to speak, the dosage of immunization.

The avenue of introduction adopted exclusively is that of intravenous injection.

As the immunizing substance, I reject the dead bacilli, and even living bacilli cultivated on a solid media. I use cultures in bouillon, made under conditions suited to insure a strong yield of dissolved toxin. These cultures can be injected complete (living bacilli included); by preference now, by a special procedure of filtration, I take from them the greatest part of the bacilli. That which is important is the typhoid toxin present at the same time on (*sur*) the bacilli and diffused in the surrounding liquid. The bacilli are useful only as vectors of toxin—for me, identical with the dissolved toxin; as a complex compound they are useless and harmful; badly tolerated, they impede the immunization. My cultures, almost entirely reduced to soluble principles, are sufficiently toxic to kill the guinea-pig, on intravenous injection, in less than twenty-four hours with a dose of about 2 c. c. (for a subject of 400 grams).

In a first phase of the preparation the horse receives in the veins doses increasing progressively. After a certain optimum, realized in four or five months with a relatively small quantity of immunizing substance, there is a disadvantage in prolonging the impregnation of the subjects by ever-increasing quantities, or even by sustained strong doses. Many times, under these conditions, I have seen the tolerance of the animals give way, sometimes in a definitive manner, and always the maintained progression of the doses of bacilli has brought about, at a given moment, even in the absence of intolerance, a reduction in the value of the serum. There is the principal danger in the preparation of the antityphoid serum. I avoid this danger by the following technic: After each bleeding the

treatment is resumed with a *reduced* dose; the injections following are in increasing doses, in such manner that the last of the series of four to six injections may be at least equal to that of the preceding series. It is by this method, and by this alone, that I have succeeded in causing the production in a horse, in a prolonged fashion, of a serum of constant value, even with complete cultures; the cultures almost entirely reduced to soluble products obtain this result more readily. The intervals between the injections ought to be (except for the first phase) relatively long (fourteen to sixteen days). The bleeding is done sixteen to seventeen days after the last injection.

For the experimental control of the serum I forego the classic test by injection of the bacillus of Eberth into the peritoneal cavity of the guinea-pig as having no significance for the therapeutic value of the serum. [85] I have recourse to a test much more severe. The cultures (in bouillon, complete and living) are injected into the veins of the guinea-pig; the animal dies in less than twenty-four hours by pure intoxication, without bacillar multiplication, and with lesions which are the same, whether with the bacilli alone, the complete liquid cultures or the filtered cultures. The serum, injected preventively under the skin in the dose of 0 c. c. 2 or 0 c. c. 3, ought to protect against a dose notably superior to the minimal lethal dose injected into the veins. I proceed also by mixture; mixed in the culture in the proportions of  $\frac{1}{10}$ ,  $\frac{1}{20}$ , the serum protects the animals against a more than lethal dose.

This test betrays an antitoxic (in the large sense of the word) quality, which, considered in several samples of serum, is by no means proportional to the agglutinative quality, nor even to the anti-infectious quality. The value of the criterium which I have adopted is plainly a result of the near relation between the results furnished by this experimental test and the therapeutic effects on man.

I have applied the same method to the preparation of an anti-paratyphoid serum. This new serum behaves the same in the experimental test: it protects the guinea-pig against the toxic action of the paratyphoid bacilli A and B injected into the veins—a toxic action, moreover, identical with that of the typhoid bacillus.

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**ANTITYPHOID SEROTHERAPY: APPLICATION.\***

By A. RODET, Professeur de Microbiologie, Université de Montpellier.

Translated for the NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

by LODILLA AMBROSE, Ph. M., New Orleans.

[114] The serum which I prepare has been applied up to this time to the treatment of 400 patients in a series of hospital services. Among those who make the most use of it I will cite Rédmond and Étienne, who have announced their results to the Academy and to the Société médicale des Hôpitaux.

The influence of the serotherapy may be summarized in the following formula:

When the serum is administered soon enough (in the absence of established complications), in sufficient doses and at suitable intervals, in the great majority of cases it prevents the progress of the intoxication, attenuates the toxic disturbances already existing, initiates defervescence, and, finally, shortens the duration of the disease.

In order to have its full effect, the serum ought to be given before the eleventh day of the febrile period. Later the useful effects are far from being always *nil*, but they are inconstant and generally less pronounced.

The treatment ought to begin by a relatively strong dose—15 to 20 c. c. This dose may be repeated, but very often one may content himself with decreasing doses (10, 5). As a rule, three injections suffice, sometimes two; a fourth may be necessary. The interval between the injections which seems the most suitable is forty-eight hours.

The influence of the serum on the thermic curve sometimes becomes evident, beginning with the day following the first injection, oftener [115] after thirty-six or forty-eight hours; sometimes it is delayed until the second injection, more rarely until the third. It is the initial stage of the defervescence, which is then continued according to the different types.

In quite a large proportion of cases, when the serum intervenes soon enough, the lowering of the temperature is rapid and regularly progressive in such manner as to attain apyrexia in six to eight days; this "aborted" type, to use the expression of Étienne, may be observed even after a very severe onset. In other cases the de-

\*Rodet, A. Sérothérapie antityphoïdique; application. *Bull Acad. de méd.*, Paris, 1916, 3. s., lxxvi, 114-116. [The pages of the original article are given in square brackets.]

fervescence lingers at an average thermic level inferior to that of the onset, and generally then with amplified diurnal oscillations. More rarely, after a more or less marked lowering, the temperature curve rises, then continues at that level. This type (the type "*à encoche*" of Étienne) is seen specially in the cases of late treatment; in its way it bears witness in favor of the serum, putting in evidence a temporary specific action.

Paralleling the modifications of the thermic curve, the other symptoms improve, more particularly those which betray the toxic impregnation of the nervous system, the violent headache, the prostration, the cardiac asthenia. Very frequently this improvement precedes defervescence; sometimes the first effect of the serum is a relative well-being, beginning with the first hours after the first injection, and the following days one often observes a veritable euphoria (even though the temperature lags in lowering), and the disease progresses with a minimum of toxic disturbances.

The recrudescence and the relapses (*rechutes*) are not rare. Far from constituting an argument against the serum, they plead rather in favor of a specific action, either incomplete or insufficiently prolonged. The one and the other could without doubt be avoided or combatted, either by a better regulation of the dosage according to the case or by a repetition of the treatment.

The happy influence of the serum is evidenced definitively by an abbreviation of the disease, at least when the treatment is undertaken early enough. The difference in results, according to the moment of application of the serum, gives clear evidence of its efficacy. For a continuous series of 241 patients who recovered, I have calculated on the one hand the average duration for the cases treated early (before the eleventh day), with late treatment. One hundred and sixty-seven patients treated early and 28 treated late have had a regular evolution and have given, as an average of duration in days, 23.7 for the first, 33 for the second, or a difference of 9.3 days. On including the cases with relapses or recrudescence, the respective figures of the two categories are 26 and 33.85. On adding, finally, some cases prolonged by various incidents, the averages become 27.7 and 34.3. There is then always a very noteworthy difference of average duration in favor of the patients treated early.

[116] In order that the serum may have its complete effect it is necessary that the typhoid infection should be free from every secondary infection. The preëxistence of advanced tubercular lesions,

a simultaneous or secondary infection (streptococcus, staphylococcus, diphtheria bacillus, etc.) restricts its efficacy. I have reached the conviction that, in the cases where the serum seems to have no effect, mixed infections are to be suspected.

The efficacy of the serum is emphasized by the specific character of its therapeutic action. It constitutes in a certain measure a touchstone of diagnosis. The specificity goes to the point of distinguishing between the typhoid fevers properly called Eberthian and the paratyphoid infections. In these last, the serum is according to the cases of restricted or no efficacy. This is the reason why I have recently prepared an antiparatyphoid serum.

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## THE PROPOSED LEAGUE OF NATIONS.\*

By DELVAILLE H. THEARD, Esq., New Orleans.

In accepting your very kind invitation to address you on this occasion I considered that it would be proper to present, as much as lay within my power, some leading views on a subject which is not only in the highest degree timely, but truly international in concern and importance.

Certainly, the greatest question which is presented to the civilized world to-day relates to the proposed League of Nations for the determination of international differences and the enforcement of peace between nations. In my judgment, such a league will be formed, and its organization and working basis will be definitely decided and settled upon at the Peace Conference about to be held at Versailles.

I do not propose in this short paper to discuss the different views regarding the details of establishment and maintenance of such a league or of such a tribunal, but merely to emphasize the necessity and desirability of the plan and the soundness of it in principle.

Practically all nations of any importance have participated in the recent struggle, and so, of necessity, all nations must take a part in and be permanently affected by the result. Similarly, the conflict has shaken the world to its very depths, and the only adequate conclusion of this upheaval must be a result which will permanently reestablish and guarantee that lasting peace which was the common object of all the Allies.

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\*Annual Oration, read before the Orleans Parish Medical Society, January 13, 1919.  
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My friends, unless we are willing to adopt the proposed league, and through the instrumentality of such a compact are willing to create a tribunal of some sort to prevent wars by the final and conclusive settlement and adjudication of international claims and disputes, how can we secure any real benefit from the termination of the recent struggle?

We need something more permanent, something more lasting, something more concrete, than the indefinite promises and pledges which hitherto have bound nations together in international law. The only binding force which furnished a basis for mutual understanding and agreement between nations in the past was a moral force, the binding sanction of the given word, the good faith of the parties. In international law there has been until very recently no theory of compulsion to force nations to abide by their covenants and to observe their mutual promises. Further, nations have entered into alliances which were dictated by their selfish purposes, their desire for joint power—their desired protection against a common foe—their wish for territorial aggrandizement. In the past, international unions have been fostered by a keen diplomacy, have existed because of the selfish interest of the parties concerned—and have lasted only as long as they were agreeable to those parties and served their respective selfish interests.

The first point which I would make to-night, therefore, is that national agreements and treaties, when organized loosely as in the past, have never been a permanent success and have never been lasting. The compacts binding together a few nations have been broken, the treaties have been disregarded, their promises have been forgotten, whenever such action was expedient or desirable for any purpose.

Do not think that I speak too harshly or that I exaggerate. We have only recently witnessed the greatest disregard of treaty obligations and the perpetration of the greatest wrong and crime in the history of international law. But the German offense against civilization itself was, unfortunately, not a single or solitary event in the world's history. It was, on the other hand, only the culminating event in a long series of international disturbances and disasters. History is marred, almost on every page, by wars of conquest and filled with disturbing events based on unworthy and unjust motives—generally motives of the most reprehensible, selfish interest.

Therefore, may we not say, looking at history itself, that the existing order of things international has been a failure; that no appreciable amount of good, and certainly no permanent peace, has resulted from that existing order, and that there is need, or at least some justifying excuse, in the present attempt to find some substitute or some binding plan and scheme to hold the nations together and in check, and in that manner to promote their respective interests, purposes and development, and at the same time to further and promote their common purposes, needs and safety?

This is the purpose of the proposed League of Nations, now so effectively championed by President Wilson.

Can we admit that the sacrifices all over the world during the last four years have been made in vain? Are we willing to say that nothing permanent for peace and concord in the world shall result from a cataclysm which certainly has proved to us, on the one hand, the danger of permitting an irresponsible power to grow unchecked, and, on the other hand, the benefit to be derived from concerted international action towards peace and for freedom? Certainly, we must be in favor of the adoption of that plan which will most probably insure a lasting, permanent peace, as the only adequate compensation for the cost and trials of the recent war.

Former President Taft, who as President of the League to Enforce Peace, has worked unceasingly and brilliantly for the organization of a League of Nations, has pungently stated the present problem and his suggestion for its solution:

“After you have this treaty of peace, you can’t interpret it unless you have a court to do it with. You can’t establish all these governments and keep them going and get along without it, and stay in harmony, unless you have a congress of powers which can make new international definitions, almost a complete codification of international law.

“This Treaty of Paris is going to be worth nothing but the paper it is written on unless you have a league to enforce peace upon one-half of the world. Having done that, it is easy to take the final step by agreeing among yourselves to abide by what you have imposed on others.

“Gentlemen, the Lord has delivered the foes of a League of Nations into our hands. You can’t escape it. Unless you have such a league your war is a failure, your treaty is a failure, and your peace is a failure.”

For the formation of such a league, the beginnings are already to be found in the Inter-Allied Missions organized for carrying on the war. In the prospectus recently put forth by the new League of Free Nations’ Association in this country reference is made to these Inter-Allied Missions as furnishing in some respects the working

model and practical basis for the organization of a League of Nations.

“The administrative machinery of a workable internationalism already exists in rudimentary form. The international bodies that have already been established by the Allied belligerents—who now number over a score—to deal with their combined military resources, shipping and transport, food, raw materials and finance, have been accorded immense powers. Many of these activities, particularly those relating to the international control of raw material and shipping, will have to be continued during the very considerable period of demobilization and reconstruction which will follow the war. The problems of demobilization and civil re-employment particularly will demand the efficient representation of labor and liberal elements of the various States. With international commissions and exercising the same control over the economic resources of the world, an international government with powerful sanction will in fact exist.”

Viscount Grey also advocates the Inter-Allied Missions as bases for the formation and operation of a League of Nations, and General Smuts, a member of the British War Board, speaking to the same effect, says:

“We must feel that in the call to common humanity there are other purposes besides the prevention of war for which a League of Nations is a sheer, practical necessity. One of the first steps must be to create an organization against hunger, and ration all the countries where disaster threatens. The existing allied machinery, which is the nucleus of a League of Nations, probably will undertake this task. In the period of reconstruction after the war all countries, allied, neutral and enemy, will have to be rationed for certain raw materials. Here again international machinery is necessary. We are thus making straight for a League of Nations charged with the performance of these international functions.”

My friends, the world to-day is ripe for a League of Nations.

Never before has the attention of civilization been so fully directed to the wrongs caused by the wanton disregard of so-called treaty obligations. The German crime will always be a menace unless the world readjusts the social and international order which made such a crime possible. Therefore, it is particularly in the horror of recent events and in the disaster of the last four years that we find the quickened international spirit for justice and order from which has sprung the desire and the hope for the League of Nations. It is in those glorious impulses and ideals which have sprung from the late war that we find the most potent incentive for a nations' league.

There is to-day in the souls of men the burning desire for freedom and democracy, and as never before men desire that this new order shall extend over the whole world and that all mankind shall be

governed and protected in accordance with these beneficent principles. Everywhere we find to-day an insistent demand for the protection and the uplift of the weak and the oppressed; the doctrine of the mailed fist no longer exists; German kulture is a term of derision and hate; the present era is one of international benevolence and international relations depending upon the brotherhood of man.

The war has served the mighty and glorious purpose of bringing men together and of bringing nations together, and to-day men are more ready and more anxious to make those sacrifices and those concessions which must accompany every kind of union and every kind of contract.

Of course, there is opposition, in every country, to the formation of a League of Nations. That opposition is largely political, although it springs certainly also in many cases from a sincere belief that human nature even now is not sufficiently mellowed and sufficiently softened for the confection of a binding international compact and the establishment of a new international order. I fully consider the inherent difficulties of the problem and the limitations of human character, but I conceive that never before have nations been so bound together by noble sentiments, unselfish interest and exalted aims. And I therefore submit that, since we have at hand this great basis for a beginning of relations and for a common understanding, it is proper at this time to promote a league which will bind the nations together and obtain for the world, in a concrete and effective form, those ideals of international justice and of human freedom for which the Allies fought.

Nor, indeed, should the execution of the plan be attacked because of practical difficulties, because of the vastness of the project or its newness as an international working scheme and plan. In this day and time we must not allow such considerations to prevent the adoption of an idea, which is inherently worth-while, which is presented for adoption under circumstances peculiarly favorable, and which, if put to execution, must be of lasting benefit to all peoples.

Nor should we be intimidated or perplexed by the differences—quite slight in themselves—which necessarily must arise between the respective leaders regarding the details of even the substantial points of the plan proposed. The greatness of the proposal, the sound and careful consideration and study which it will receive, and indeed which it is undergoing and has been undergoing for some time already, must lead to a result which, though varying in detail,

will certainly maintain and perpetuate the desirable ends of a permanent and lasting peace, depending on a binding agreement and enforceable union between nations. Certainly, slight reflection will convince us that the statesmen to whom is entrusted the realization of this great program for the future peace of nations and the well-being of the peoples of the earth will have as their paramount aim the perfection of some plan to bring about permanent peace and to destroy absolutely the bane of militarism. And, for the complete realization of such a purpose, a League of Nations is required and, in my judgment, a League of Nations will and should be formed.

From many in America comes particularly the objection, based on our so-called national traditions, that we must avoid all entangling alliances. But, my friends, is this really our policy, and, if it is, have we not ourselves found and justified the shining exceptions which in our case prove the general rule? I may grant to you that Americans have maintained the integrity of their continent and have remained absolutely free from all alliances looking to selfish purposes, especially to any increase of territory or the desire to make common cause with some friendly power against some unfriendly and less powerful nation. But there is no such scheme in the league which we support, and, on the contrary, the League of Nations is consonant with American principles and the ideals of our Republic. When the peace of the world was imperiled we did not allow our theories against entangling alliances or our theories of aloofness to prevent us from doing our duty and from interfering. When the freedom of the seas was imperiled we did not hesitate to protect ourselves and to take a positive and an aggressive stand. When oppressed peoples needed protection we did our share, whether in Belgium or in Cuba, and perhaps the sole criticism—and that a grave one—was that we did not act soon enough. So, our theories and precepts of territorial and international aloofness and independence have never prevented us from participating in international issues of freedom and right, which concerned us because they concerned the well-being of all other peoples. So this league, this glorious ideal for a permanent peace and this grand union of fellowship and coöperation of nations, concerns us because it concerns the whole world, and particularly because its aims and purposes, in freedom, in right and in justice, and for a permanent peace, are precisely the purposes and ideals of our Republic and the very reasons which justified our participation in the war.

**REPORT OF PRESIDENT OF ORLEANS PARISH MEDICAL SOCIETY FOR THE YEAR ENDING DECEMBER, 1918.\***

PAUL J. GELPI, M. D., New Orleans.

The warring bugle is now silent; the battle-cry is hushed; the scenes of carnage have vanished, and at last the dove of peace has alighted on the standards of the nations of the globe. Brutal force has been overwhelmed, tyranny crushed and democracy rules supreme. But, with the blessings of liberty glorified, comes the stern realization of what the war has cost; and to-day the whole world is taking an inventory of the weary years of war. Never has the universe been so convulsed; never has civilization or organized effort been so sorely tried; never before has every field of human endeavor been put to such a severe test as during the past years of horror and sacrifice. But the victory is won, and the American eagle, with widespread wings, is soaring to the utmost heights of freedom, bearing the message of democracy to the peoples of the world; and America, strongly armed with justice, overflowing with boundless generosity, unconquerable in her might and strength, and effulgent with her halo of liberty, stands the brightest among the gems of the crown of nations.

The Orleans Parish Medical Society did not escape the baneful influence of the times, and its normal activities were seriously interfered with. But if, from a scientific and organization standpoint, the year has not been so fruitful, yet it had the unusual opportunity of expressing its loyalty and lending its assistance in the greatest work ever undertaken for the cause of humanity.

Although not directly engaged in war activities, the Society lost no opportunity to assist and promote all patriotic movements. All Liberty Loan, Red Cross and War Savings drives were endorsed and the membership was urged to help and contribute generously.

Resolutions were passed endorsing the Owen Bill and the efforts of the Elks to erect a reconstruction hospital in New Orleans.

By special resolution, the services of the Society were offered to the Draft Boards.

The Volunteer Medical Corps was endorsed and full coöperation promised for the organization of the Louisiana Base Hospital tendered to France to commemorate the Centennial of New Orleans.

An appeal by resolution was made to the Secretary of War to

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\*Read at the Annual Meeting of the Orleans Parish Medical Society, January 13, 1919.  
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expedite the mustering out of our medical men. Due acknowledgment of this was made by the War Department, with the assurance that the matter would receive early consideration. But the greatest of all our contributions to the war was the quota furnished for active military service. Ninety-six of our members, or over one-quarter of our total membership, were enrolled in the medical service of the army.

Owing to the influenza epidemic and other unavoidable causes, our meetings were fewer. Eighteen regular meetings were held. Although much difficulty was experienced in procuring papers for our programs, some work of exceptional merit was presented to the Society. Deserving of special mention are the Symposia of Criminal Abortion and of Gall-Bladder Diseases. There was only one special meeting devoted to consideration of the Volunteer Medical Corps. For the first time in the history of the Society, a clinical meeting was held in Touro Infirmary.

A word as to our financial condition. Conditions did not permit the retiring of bonds, but our finances show a healthy balance, practically equal to that of last year. This is especially gratifying, in view of the large number of our members in military service, whose dues were remitted. This was offset in a great measure by the Absent Members' Fund. We take this opportunity of thanking those who so generously responded to the appeal. It is a source of pride to know that over two-thirds of our members contributed to this fund.

We wish to extend to your Board of Directors our sincere thanks for the diligence, interest and energy which they displayed in the exercise of their function. Of the many questions submitted for their consideration, we will only mention the more important ones.

The adjustment of our bond issue was perfected and all paid-up coupons were cancelled.

The Louisiana State Medical Society was requested to suspend the dues of absent members.

The Dental Society was invited to hold its session in our assembly hall.

In recognition of valuable legal services rendered gratuitously, the firm of Dart, Kernan & Dart was selected as legal advisers of the Society.

Most important of all was the consolidation of the offices of the Louisiana State Medical Society, Louisiana State Board of Medical

Examiners and the Orleans Parish Medical Society. The object of this arrangement was centralization, efficiency and economy. We are pleased to state that the plan has worked admirably well and all aims fully realized.

The Society was called upon on several occasions to express its views on matters of public interest. Chief among these was the question of the lengthening of school hours, and the Society availed itself, for the first time, of the new form of voting on questions of public policy. This vote was overwhelmingly against the proposition. We feel that this was a step in the right direction. Both as representatives of the medical profession and as public-spirited citizens it is our duty to express ourselves on medical and health matters of public interest when called upon to do so, and there is no doubt in my mind that, as a body, we should be a great power for public good if we would lend our efforts when occasion arises.

Our library possesses many valuable volumes, but has not been sufficiently provided for in recent years. We would recommend that some means be devised to replenish it and bring it up to date.

At the last session of the Legislature several measures of a medical character were introduced. The bills that interested us more particularly were those dealing with the physicians' license tax exemption, physicians' yearly registration, and chiropractice. The passage of the first was dependent on the success of an administration revenue measure, in which was incorporated the revocation of all vocational license taxes. Unfortunately, this bill was defeated, and, having assured ourselves that a separate bill could not be passed, the question was deferred to some future time. The second measure was given support, because the very existence of the Board of Medical Examiners was threatened. The expenses of this board are not provided for by State appropriation, but are derived entirely from examination fees. In the past few years, because of the higher requirements of medical education, the number of applicants have steadily decreased and the revenue has shrunk in proportion. Therefore, if we want protection against illicit practitioners and charlatans, it behooves us to give this our full coöperation and conform with its provisions.

It is with pleasure that we report the defeat of the Chiropractic Bill.

The toll paid the Grim Reaper during the past year has been the heaviest in our history. It is with deep regret and great sorrow

that we record the deaths of our confrères and friends, Drs. BRICKELL, DEMAHY, DE ROALDES, GAUDET, GROETSCH, LAURANS, SAM LOGAN, NOLTE, HERMAN OECHSNER and RICHARDS. They were all men of true merit and attractive personality, and some had attained great distinction. Their demise is a loss not only to the medical profession, but also to the community at large.

The recent visitation of influenza, both on account of its severity and its widespread prevalence, taxed the medical profession to the limit. As the demand for medical aid could not be met, we appealed to the specialists of the Society and established an Emergency Bureau, in the care of our assistant secretary and assistant librarian. We wish to commend the readiness and zeal displayed by those who voluntarily relinquished their special practice during the height of the epidemic. We are glad to state that the bureau rendered efficient service and contributed in no small measure in providing assistance for those who could not otherwise secure it.

Notwithstanding the unusual conditions prevailing, our membership numbers 349—a gain of four members over the previous year. We have also on our rolls seventeen associate members, making a grand total of 366.

It has been suggested that a demonstration should be held in honor of our men when they return home. The idea is an excellent one, but cannot be carried out for a long time to come. We believe that some permanent mark of recognition should be given to their patriotism, loyalty and sacrifice. We have a large panel in our assembly hall which is absolutely bare. It offers a fitting place for a tablet with the names of all those in active military service. We earnestly recommend this for your favorable consideration.

We wish to report that a loving cup has been offered for the best scientific paper read during the coming year. The selection of the winner is to be made by the Scientific Essay Committee. This should stimulate keen competition among the members and insure most interesting and constructive scientific sessions.

We cannot close without expressing our appreciation of the excellent work of our clerical force. Our task was much facilitated by their close attention and application.

The dawn of a new era is upon us. The world is about to be rejuvenated in the spirit of democracy. The wheels of progress are about to resume their motion and give a fresh impetus to all human activities. The Orleans Parish Medical Society must have its share

in the advancement that is sure to follow. With its men returning from the front flushed with victory, imbued with the spirit of co-operation, brimful with the knowledge of new diseases brought on by novel modes of warfare and armed with new healing methods taught by actual experience, new life should be injected into its proceedings, and we prophecy for it one of the most successful years in its history.

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## ADDRESS OF INCOMING PRESIDENT OF ORLEANS PARISH MEDICAL SOCIETY.\*

H. E. BERNADAS, M. D., New Orleans.

*Mr. President, Honored Guests, Fellow Members:*

In 1878 a group of medical men, pioneers, idealists—yes, even practical men—organized a child which to-day is your parent—the Orleans Parish Medical Society.

They were pioneers, because, with the spirit of the pioneer, they delved into an unknown realm, the realm of medical organization.

They were idealists, because they foresaw, for the future, medical men gathering together in concourse, both social and scientific.

I said they were practical men. They were practical men, because they organized permanently—the evidence of the permanence is before you. Forty-one years of association of medical men has put before you the finished product of to-day—the Orleans Parish Medical Society.

The spirit of the pioneer did not die with the organizers of the Orleans Parish Medical Society, because that spirit courses to-day through the veins of every one of you—not only the spirit of the pioneer, but the spirit of self-sacrifice, which eventuated in our permanence. But that this may not seem mere praise, I will recall to your mind the promptness with which you came forth when this organization stood in the twilight of “No-Man’s Land,” between solvency and sanctuary on one side and insolvency and the loss of a home on the other. You went deep into your purses and gave of your own that the Society might live and retain its home. That is not only pioneer spirit, but it is the spirit which lends permanence. Not only are you pioneers, but you are loyal men. When a fellow-member was in distress you organized a “Relief Fund” that the

\*Read at the Annual Meeting of the Orleans Parish Medical Society, January 13, 1919.  
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wants of a fellow-member might not be felt by him or seen by the public at large. That is an evidence of your wholeheartedness.

Your loyalty as a group is emphasized by the loyalty in the individual; one of our members proves this when he offers a loving cup for the best paper delivered during the coming year. His purpose is apparent to every one. A man who thinks so highly of his Society that he is willing to go into his purse to make the standard of papers the highest possible is certainly a criterion whom we should emulate. Let us back up his efforts; let us have a plethora of papers and a rousing and enthusiastic attendance at each meeting. This man is the right kind of a member; let us attempt to be like him.

**SACRIFICES, INFLUENZA, WAR.**—During the past year you have been called upon to make many sacrifices, due to untold labor far beyond that expected of medical men ordinarily.

The cause of this has been, first, the prodigious amount of work brought on by the epidemic; second, the great draft from our roll called by government needs; and, third, I might add, death has taken its toll from our members.

When death, like an artist strumming his harp, lets his fingers wander, and mutes here and there a cord, making discord where harmony reigned before, he takes toll not only from our membership, but from the inspiring incentive engendered by the presence of that member—the melody subdued.

Some of our best men have sacrificed their lives in the struggle for the betterment of mankind, either in the service of the government, to help subdue that hydra-headed monstrosity, kultur, that peace and liberty might reign on earth, or fighting a foe more insidious, and possibly as disastrous—the epidemic influenza. That more of our members did not succumb to the latter, to my mind, was due to good fortune, because every one of you have devoted your waking and sleeping hours to subduing this disastrous disease and have willingly exposed yourselves that others might be saved. Your immunity was not the result of caution, but persisted in the face of exposure brought on by your valor.

**SPECIAL MEETING.**—A group of men from the Orleans Parish Medical Society have ordered me to call a special meeting as soon as possible to discuss the influenza condition and to ascertain ways and means of combating the present impending epidemic. I believe the move is a good one, and I admire the wisdom of the men who

are calling this meeting. It is about time that medical men should have a say in the control of disease and epidemic in New Orleans.

When the October epidemic was at its height and it was deemed necessary to call a conference to ascertain what would be the best method of combating it a conference was called, but, strange to say, the Orleans Parish Medical Society was not asked to attend.

Gentlemen, it seems a 'far cry in our days of advancement and civilization that medical men are not called in conference to control disease, and my idea is that these men are correct, and they are right when they decide that, if they are not called in conference, they nevertheless should be heard, as disease can be controlled and should be controlled by medical men. We should establish such a precedent that, at any time in the future should such a condition present itself again, the medical men would be the first men called, and not the first men omitted.

Part of this condition may be attributable to the fact that we have not been aggressive enough. We are a public institution; we are not only an institution, but we are public-spirited. But our organization is like the doctor—timid and hesitant. He knows he has ability, but is always reluctant to thrust it forward where it is not asked; whereas, as a public-spirited citizen, he should not only offer it, but should see that his suggestions are carried out.

Therefore, I beg you, men, to stand shoulder to shoulder in as large a mass as you can gather at this special meeting and make yourselves heard. If you believe these men are right, side with them with all your might and all the force of which I know you are capable. If you believe they are wrong, attend in equally great numbers, so that the standard of this institution may be established once for all. Either we are a public institution or we are not. If we are, then, gentlemen, let everybody know it. If we are to have any weight in this community we must act as a body, because mass, when started, acquires momentum, and momentum we need now.

Remember that I am only your President. The institution is yours—it will be what you make it; and again I say, risking the fear of fatiguing you, that something must be done. I am with you, for you, to do whatever you decide to do, but, when you do it, do it boldly and in large numbers.

CONCLUSION.—You have conferred an honor upon me. The honor is received with gratitude and with the feeling of humility and responsibility; because, in assuming this honor, I am assuming also

the task of following in the footsteps of very worthy men. I have seen first one and then another relinquish his responsibilities without a mar in the progressive life of this institution, and it is with trepidation that I gaze upon the enormity of the task. These men were able men, they were genial men; their ability and geniality were never more manifest than when the hour was darkest and chaos seemed most immediately impending. How skillfully they steered the bark of this Association between Scylla and Charybdis has always been a source of wonder to me, and the wonder now seems greater when the same steering devolves upon me.

Therefore, before closing this address, I want to again pay tribute to my predecessors and place before them my sincere homage and respect, as they are most undoubtedly deserved, and I am sure that every member present joins me in extending them the thanks of this organization and congratulations on their most felicitous career.

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## LOUISIANA STATE MEDICAL SOCIETY NOTES

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NEXT MEETING AT SHREVEPORT, APRIL 8; 9, 10, 1919.

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Dues are past due. Pay now, through your Parish Secretary or direct to Secretary-Treasurer, Dr. E. W. Mahler, 141 Elk Place, New Orleans, if parish is not organized, so as to be in good standing. Make your arrangements now so that you will attend the meeting at Shreveport, April 8-10, 1919, where you will meet your friends and confrères, who will relate their professional and personal experiences of the past year, which has been an unusual one for the entire medical profession. Many new things have been proven in the field and camp hospitals along the lines of treatment and prevention of disease. You should be interested, as your future practice depends on keeping abreast of the times.

Your officers and the Shreveport Medical Society are looking forward to the largest meeting ever held, notwithstanding that many members are still "in service."

The President, Dr. W. H. Knolle, has appointed the following Chairmen of Sections of the Scientific Program:

\_\_\_\_\_, "War Subjects" (Chairman to be announced later).

Dr. Frank Chalaron, New Orleans, "Genito-Urinary, Rectal and Skin Diseases."

Dr. Allan C. Eustis, New Orleans, "Medicine and Therapeutics."

Dr. Oscar Dowling, Louisiana State Board of Health, New Orleans, "Health and Sanitation, Bacteriology and Pathology."

Dr. R. W. O'Donnell, Monroe, La., "Diseases of Children."

Dr. R. M. Penick, Shreveport, La., "Surgery."

Dr. T. H. Watkins, Lake Charles, La., "Gynecology."

Dr. C. A. Weiss, Baton Rouge, La., "Eye, Ear, Nose and Throat."

Communicate with the above chairmen at once if you wish to take part in the scientific program, as the number of papers are limited. All members are urged to present papers on subjects of interest and to discuss freely the papers read.

The chief topics during the past year relate to the war. Dr. P. T. Talbot, Secretary-Treasurer, left with Hospital Unit No. 102 for Italy. The Executive Committee of the Society elected Dr. E. W. Mahler, Secretary-Treasurer. The committee also granted the President, Dr. W. H. Knolle, power to expend moneys to aid the government in any manner the organization could. A War Committee, composed of the Councillors of the Society and the Secretary-Treasurer, was appointed by the President. This committee desires to supply and receive any information relative to the medical profession of the State and the war. Their chief function was to assist the government by facilitating enlistments of the necessary physicians.

At the last session of the Legislature the medical law was amended in many ways, one of the new provisions requiring annual registration with the State Board of Medical Examiners before January 1. This will give an accurate list of physicians and their location and facilitate the enforcement of the law by providing revenues. The published list will be sent to every physician and other interested parties, and will be the official list of the State, as only those registered will be legally qualified to practice in this State.

A bill was introduced in the State Legislature by Senator A. Provosty, and championed by Mr. Amos Ponder, granting a board to a new medical cult known as chiropractors. This bill required no educational standards, and graduates of their correspondence schools and any uneducated individual was allowed one year to qualify for licensure to diagnose and treat human ailments without

the supposed examination called for in the bill. After passing the Senate, the bill was killed in the House. It is necessary for every licensed practitioner and every thinking citizen to inform his Representative and Senator before they leave for Baton Rouge that such legislation is dangerous to the public health and welfare, and for this reason alone the medical profession is opposed to the legalization of any individual who asserts that all diseased or disordered function is due to subluxation of the spinal vertebræ and that the only treatment necessary (prophylactic or curative) is to reduce this supposed subluxation.

A bill creating a board to license optometrists was enacted, with the proviso that they shall not practice medicine or possess any drug, eye-lotion, salve, etc., in their establishment, which will be a cause for revocation of license and subject them to prosecution for violating the medical law. They are limited strictly to mechanical appliances.

Come to Shreveport April 8-10, 1919, for the annual meeting and mingle with your fellows. It will give you a broader vision, professionally and otherwise.

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### PARISH SOCIETY NOTES.

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THE ST. TAMMANY PARISH MEDICAL SOCIETY, at its regular meeting, held February 12, 1919, elected the following officers for the year 1919: Dr. R. B. Paine, Mandeville, president; Dr. N. M. Hebert, Covington, vice-president; Dr. A. G. Maylie, Mandeville, secretary-treasurer; Dr. A. G. Maylie, Mandeville, delegate to the State Medical Society; Dr. H. D. Bulloch, Covington, alternate. The Society adopted a strong and unanimous protest against the collection of the \$2 registration fee by the Louisiana State Board of Medical Examiners, declaring same to be unfair, unjust and preposterous, and instructed the delegate to bring the matter to the attention to the Louisiana State Medical Society at its next meeting.

It is with pardonable pride that I report the Society in a flourishing condition, numerically, financially, socially and scientifically (meaning keeping abreast of progressive medicine). With best wishes for the JOURNAL and expressions of personal esteem for its editors.

Respectfully,  
A. G. MAYLIE, M. D.,  
*Secretary-Treasurer, St. Tammany Parish Medical Society,*  
*Covington, La.*

## NEWS AND COMMENT

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**CONGRESS OF MEDICAL EDUCATION AND LICENSURE.**—The annual Congress on Medical Education and Licensure, participated in by the Council on Medical Education of the American Medical Association, the Federation of State Medical Boards of the United States and the Association of American Medical Colleges, will be held at the LaSalle Hotel, Chicago, March 3 and 4, 1919.

**EXAMINATIONS FOR MEDICAL AND DENTAL INTERNS.**—The United States Civil Service Commission announces open competitive examinations for medical and dental interns, on March 12, April 9, and May 7, 1919, to fill vacancies in St. Elizabeth's Hospital, Washington, D. C. The examination for the medical intern is open to men only, and for the dental intern to men and women. The salaries are \$900 a year for the former and \$600 for the latter, with maintenance for both. The examinations will take place in the various cities throughout the United States. For further information apply for form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

**NATIONAL HEALTH TOURNAMENT.**—On February 9, 1919, a "National Tournament in Health Knighthood," conducted for the school children of America, was begun. The tournament is to cover fifteen consecutive weeks of the school year among classes of ungraded schools, and the contest will be for credits on a "Record of Health Chores" according to the rules and conditions established, information concerning which may be had from the State anti-tuberculosis associations or health associations of each State.

**NEW PUBLICATIONS ON CANCER.**—A special committee appointed by the Board of Directors of the American Control of Cancer has recently issued a new pamphlet on cancer for distribution to the medical profession. The pamphlet is issued in coöperation with the American Medical Association. A new edition of the American Red Cross textbook on "Home Hygiene and Care of the Sick" has been issued, which contains a chapter dealing with cancer, enumerating early signs of cancer and precursors of cancer, together with a warning to have such conditions given early and competent attention.

**TUBERCULOSIS FOLLOWING INFLUENZA.**—The United States Public Health Service is sending out a warning to the public

against tuberculosis following influenza. Spain and England have reported an increase in tuberculosis after the influenza epidemic over there.

**AMERICAN PROCTOLOGIC SOCIETY.**—In order to avoid interference with the meetings of the American Medical Association, the American Proctologic Society has decided to hold its twentieth annual meeting on June 7 and 9, instead of the 9th and 10th, as originally announced, at Hotel Chalfonte, Atlantic City, N. J.

**NATIONAL TUBERCULOSIS ASSOCIATION.**—The fifteenth annual meeting of this association will be held in Atlantic City, N. J., on June 12, 13 and 14, under the presidency of Dr. David R. Lyman, of Wallingford, Conn.

**PSYCHOLOGICAL EXAMINATION FOR COLLEGE ENTRANCE.**—A new system of entrance examination, which is intended to determine the mental capacity of the respective student rather than his scholastic training, has been decided upon by the faculty of Columbia College. The applicants' fitness is to be determined upon by their school record, their character, their health record and their mental capacity as determined by a series of psychological tests similar to those applied to applicants for admission to the Students' Army Training Corps. In this way it is hoped to exclude students who are mentally unfit.

**CONGRESS WILL PROBE HOSPITAL CHARGES.**—Statements by soldiers, alleging brutal and inhuman treatment at various hospitals of the country, have recently been given considerable newspaper publicity and are to be the subject of investigation by Congress. A committee of seven members of the House, with powers of court to compel attendance of witnesses and the production of papers, has been proposed as the only means of getting at the truth or falsity of the charges. A resolution providing for such an investigation was introduced into the House and referred to the Rules Committee.

**POLYCLINIC HOSPITAL OFFERED TO COLUMBIA UNIVERSITY.**—The New York Polyclinic Hospital, by unanimous vote, has offered to transfer the property of that institution to Columbia University, with the provision that it be maintained and perpetuated for the public service and for advanced research in medicine and surgery.

Resolutions have been adopted by Columbia University receiving with grateful appreciation the proposal and appointing a subcommittee to arrange the detailed terms and conditions of accepting the proposed gift. The university will not be able to use the hospital for some time to come, as it is now in possession of the government and is conducted as a military hospital.

AMERICAN CONGRESS OF INTERNAL MEDICINE.—At the annual meeting of the American Congress of Internal Medicine, held in New York, December 30, the following officers were selected to serve for the ensuing year: President, Dr. Glentworth R. Butler, Brooklyn; first vice-president, Dr. Frederick Tice, Chicago; second vice-president, Dr. Clement R. Jones, Pittsburg; treasurer, Dr. Augustus Caille, New Orleans; secretary-general, Dr. Frank Smithies, Chicago; associate secretary-general, Dr. Joseph H. Byrne, New York.

LOSS OF NURSES THROUGH INFLUENZA.—According to figures made public by the Red Cross headquarters at Washington, more than 200 American Red Cross nurses have died of influenza contracted while ministering to soldiers stricken with the disease. It is also reported that there are returning to America many New York Red Cross nurses who have contracted tuberculosis at the front and whose condition demands immediate treatment.

PNEUMONIA IN THE UNITED STATES.—The Public Health Service in Washington reports from the health authorities of forty-six of the largest cities of the United States a total of 49,265 deaths from pneumonia occurred in these cities from September 14, 1918, to January 25, 1919. Of this number, 6,865 occurred during the month of January and 6,579 during December. The total deaths from pneumonia in New York City during this period numbered 13,795; 1,342 during December and 2,193 during January.

PERSONALS.—Dr. William H. Welch, Baltimore, was elected a member of the National Board of Medical Examiners at its last meeting, to succeed Dr. Henry Sewell, of Denver, resigned.

Dr. C. S. Holbrook, for the last five years connected with the East Louisiana Hospital for the Insane at Jackson, will remove to New Orleans in March to engage in practice limited to mental and nervous diseases.

Dr. C. L. Mengis, in charge of the Base Hospital at Porto Rico, with the rank of major when he received his discharge from the service, has located in Monroe.

Among the doctors of New Orleans who have been in active service and who have recently arrived home are: Drs. A. J. Babin, E. F. Bacon, S. M. Blackshear, Emile Bloch, Sidney F. Braud, S. M. D. Clark, J. A. Devron, Simon Geismar, J. B. Harney, William M. Hayes, Earl A. Hogan, David Hyman, E. S. Keitz, A. L. Levin, Abraham Mattes, Hilliard E. Miller, C. E. Verdier, R. M. Van Wart, G. H. Upton, G. J. Taquino, A. L. Whitmire, G. F. Roeling, J. J. Ryan, E. S. Scharff, W. H. Seemann, C. V. Vignes, J. T. Halsey, L. A. Ledoux, Wm. M. Johnson, R. E. Bordet, J. T. Nix.

Dr. Adolph Henriques (New Orleans) announces the association of Drs. Leon J. Menville and William J. Devlin with him in Röntgenology.

REMOVALS.—The office of the secretary of the National Board of Medical Examiners has been removed from 310 Real Estate Trust Building to 1310-1311 Medical Arts Building, northwest corner Sixteenth and Walnut streets, Philadelphia.

Dr. T. C. Oliver, from Keiser, Ark., to Leland, Miss.

Dr. Percy L. Querens, from Jefferson Barracks, St. Louis, Mo., to Base Hospital, Camp Taylor, Louisville, Ky.

MARRIED.—On January 1, 1919, Dr. Charles Wesley Barrier, Jr., to Miss Leonora Mayberry, of Franklin, Tenn. Dr. and Mrs. Barrier will reside in Lake Bluff, Ill. Dr. Barrier is a graduate of Tulane, Class 1916.

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## BOOK REVIEWS AND NOTICES

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*All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

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**Anatomy of the Human Body**, by Henry Gray, F. R. S. Lea & Febiger, Philadelphia and New York, 1918.

Sixty years a text-book preferred in the countries in which is used the language of its author is probably a unique record and, of course, could scarcely be true of any medical book save one on anatomy.

While this is the twentieth edition of the famous work, and many advances have been made in microscopic and embryonic anatomy, the main text remains much the same, the plan originally formulated has been continued, and many of the original illustrations are still used.

It is still the Gray's Anatomy with which we became acquainted forty years ago, though there are more illustrations, and these illustrations are more colored than in the old days. Yet, it must be understood, it is brought up to date, and new matter has been added by the editor, Dr. Warren Lewis, wherever additional knowledge has been gained. It is like an old friend having perpetual access to the fountain of youth.

C. C.

**Emergencies of a General Practice**, by Nathan Clark Morse, A. B., M. D., F. A. C. S. C. A. Mosby Company, St. Louis.

The field covered by this treatise is so extensive that many of the subjects in the text are treated in such an abridged manner as to detract somewhat from the value of the work. Nevertheless, the young practitioner who has not had the advantage of an internship in a large hospital will find much that is helpful in this book. This would also apply to the practitioner in small towns or rural communities whose experience has not covered a great variety of cases.

STORCK.

**The Röntgen Diagnosis of the Diseases of the Alimentary Canal**, by Russell D. Carman, M. D., in conjunction with Albert Miller, M. D. W. B. Saunders Company, Philadelphia.

As these two authors are well known and their capabilities duly recognized, their introduction to the medical profession is already complete. These two able men have presented the American medical profession with an excellent book, which is in line with the best modern practices. The 504 original illustrations are superb.

The practitioner who wishes to keep in close touch with the best work in Röntgenology by Americans in relation to the alimentary canal will do well to consult this book frequently. As to the rôle of Röntgenology in the examination of the digestive tract, we can well say, with the authors, that it has afforded us "efficient and practicable aid in gastrointestinal diagnosis."

STORCK.

## PUBLICATIONS RECEIVED

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**P. BLAKISTON'S SON & CO.,** Philadelphia, 1919.

*Surgery in War*, by Alfred J. Hull, with a preface by Lieut.-Gen.

T. H. J. C. Goodwin, C. B., C. M. G., D. S. O. Second edition.

**W. B. SAUNDERS COMPANY,** Philadelphia and London, 1919

*The Medical Clinics of North America.* September, 1918.

*The Surgical Clinics of Chicago.* December, 1918, Vol. 2, No. 6. Index number.

**WILLIAM WOOD & CO.,** New York, 1919.

*Text-Book of Chemistry*, by R. A. Witthaus, A. M., M. D. Seventh revised edition, by R. J. E. Scott, M. A., B. C. L., M. D.

*A Practical Medical Dictionary*, by Thomas Lathrop Stedman, A. M., M. D. Fifth revised edition.

**THE MACMILLAN COMPANY,** New York, 1919.

*The Disabled Soldier*, by Douglas C. McMurtrie. With an introduction by Jeremiah Milbank.

**THE YEAR BOOK PUBLISHERS,** Chicago, 1918.

*The Practical Medicine Series.* Under the general editorial charge of

Charles L. Mix, A. M., M. D. Volume VII: *Skin and Venereal Diseases*, edited by Oliver S. Ormsby, M. D., and James Herbert Mitchell, M. D. Series 1918. Vol. VIII: *Nervous and Mental Diseases*, edited by Peter Bassoe, M. D. Series 1918.

**GOVERNMENT PRINTING OFFICE,** Washington, D. C., 1919.

*Public Health Reports.* Vol. 34, Nos. 1, 2, 3 and 4.

*Health Almanac for 1919.* Compiled by R. C. Williams, Assistant Surgeon, U. S. P. H. Service.

*United States Naval Medical Bulletin.* January, 1919 (quarterly).

*Keeping Fit.* V. D. Bulletin No. 1.

*Report of the Provost Marshal General*, to the Secretary of War.

### MISCELLANEOUS:

*Representation in Industry*, by John D. Rockefeller, Jr.

*A Great National Service*, by John B. Lunger, vice-president, Association of Life Insurance Presidents, New York City.

*Proceedings of the Twelfth Annual Meeting of the Association of Life Insurance Presidents.* New York, N. Y.

*Japanese Medical Literature.* (Reprinted from the *China Medical Journal*, Shanghai, China.)

*Almanac Louisiana State Board of Health, 1919.* (Published by the Louisiana State Board of Health, New Orleans, La.)

*United Fruit Company Medical Department.* Annual Report, 1918. (Geo. H. Ellis Company, Boston, Mass.)

*Autobiography of an Androgyne*, by Earl Lind. (The New York Medico-Legal Journal, 1918.)

**REPRINTS.**

**The Yellow-Flowered Cyrtopodiums; The Trillium Grandiflorum Group; Notes on the Michigan Flora; Brazilian Jalap and Some Allied Drugs,** by Oliver Atkins Farwell.

**Never Again (Perhaps).** A Plea for Universal Service, by G. Frank Lydston, M. D.

**Paramycetoma; the Classification of the Mycetomas; a Sudanese Streptococcal Dermatitis,** by Albert J. Chalmers, M. D., F. R. C. S., D. P. H., and Major R. G. Archibald, M. B., D. S. O., R. A. M. C.

**Enteromonas Hominis and Protetramitus Testudinis,** by Albert J. Chalmers, M. D., F. R. C. S., D. P. H., and Waino Pekkola.

**The So-called Epidemic of Influenza,** by Albert J. Croft, M. D.

**NOTICE!**

Income tax returns must be filed on or before March 15. Every single person in the United States whose net income for 1918 was \$1,000 or over, and every married person whose net income was \$2,000 or over, must file same with the Collector of Internal Revenue for his district.

Heavy penalties, ranging from \$1,000 up, are provided for failure to file a return on time.

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**MORTUARY REPORT OF NEW ORLEANS.**

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for January, 1919.

CAUSE.	White.	Colored.	Total.
Typhoid Fever	1	1	2
Intermittent Fever (Malarial Cachexia)			
Smallpox			
Measles			
Scarlet Fever			
Whooping Cough			
Diphtheria and Croup			
Influenza	405	118	523
Cholera Nostras	1		1
Pyemia and Septicemia	1	1	2
Tuberculosis	63	45	108
Cancer	28	6	34
Rheumatism and Gout		2	2
Diabetes	3	1	4
Alcoholism	1		1
Encephalitis and Meningitis	4	1	5
Locomotor Ataxia	2		2
Congestion, Hemorrhage and Softening of Brain	27	9	36
Paralysis	11		11
Convulsions of Infancy	1		1
Other Diseases of Infancy	20	10	30
Tetanus	1		1
Other Nervous Diseases	5		5
Heart Diseases	93	33	126
Bronchitis	6	4	10
Pneumonia and Broncho-Pneumonia	133	63	196
Other Respiratory Diseases			
Ulcer of Stomach	2		2
Other Diseases of the Stomach	1	1	2
Diarrhea, Dysentery and Enteritis	9	4	13
Hernia, Intestinal Obstruction	2	2	4
Cirrhosis of Liver	4	1	5
Other Diseases of the Liver	3	1	4
Simple Peritonitis			
Appendicitis	4		4
Bright's Disease	40	19	59
Other Genito-Urinary Diseases	14	4	18
Puerperal Diseases	7	3	10
Senile Debility	5	5	10
Suicide	2	1	3
Injuries	21	18	39
All Other Causes	30	26	56
<b>TOTAL</b>	<b>950</b>	<b>379</b>	<b>1329</b>

Still-born Children—White, 29; colored, 14; total, 43.

Population of City (estimated)—White, 283,000; colored, 106,000; total, 389,000.

Death Rate per 1000 per Annum for Month—White, 40.28; colored, 42.91; total, 41. Non-residents excluded, 36.59.

**METEOROLOGIC SUMMARY (U. S. Weather Bureau).**

Mean atmospheric pressure. . . . . 30.16  
Mean temperature. . . . . 51  
Total precipitation. . . . . 8.03 inches  
Prevailing direction of wind, north.



# NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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No. 10

## EDITORIAL

### THE STANDARDIZATION OF HOSPITALS.

In a recent one-night stand at New Orleans representatives of the American College of Surgeons presented the importance of improvement in hospital conditions, and most idealistically submitted the general manner of accomplishing such improvement.

There are nearly seven thousand hospitals of all sorts in the United States, from the twenty-five-bed semi-private sanitarium to the great institutions like the Cook County Hospital in Chicago, Bellevue Hospital in New York, the Massachusetts General in Boston and our own Charity Hospital in New Orleans.

To be effective, reform must be general, and the mere academic appeal is not going to bear fruit.

The College of Surgeons is well intended, and their intentions are further encouraged by a fair bank account derived from the various surgeons in membership, with a promise of more from philanthropic sources. But even money will not make reform, without commensurate, enforced regulation. No appeal from any single body is going to accomplish the desired results. Nearly all hospitals are now conducted as their administrators will, and it is yet rare to have the medical and surgical staffs sufficiently in authority to even direct the administration, let alone to control any part of it. The intern has still a quasi-orderly position, with perhaps a prospect of rising above it, and there is not yet coördination in most places.

The American Medical Association has issued one list of hospitals, with an apology for the meager information contained. After a few years, if they go it alone, the College of Surgeons may furnish another list, with or without the apology.

The time has come for the combination of all interests concerned—first to study hospitals; and then to develop a basis for a standard; after that, some classifying may be done with a view to standardization. Just now there are problems in medical education in connection with internships, and the hospitals themselves are concerned, because of the increasing hospital need for interns and the decreasing number of medical graduates available for such positions. Hospitals under the jurisdiction of the State directly, as well as endowed or sectarian hospitals, must meet this problem.

It will be wise to bring the authorities of hospitals, medical colleges, the nurses, the interns, as well as the bodies of physicians represented by the A. M. A. and the College of Surgeons, into some organized and systematic working force to fulfil the end of studying hospitals. For it is certain that no one of these groups of individuals or institutions will submit to a dictum from any self-constituted arbiter of standards.

The public, too, is interested somewhat. When all is said, the public is perhaps the most interested, and when the final standardization of hospitals comes about, the improved history-taking, professional technic, nursing codes, intern regulations and privileges will all make for a better-satisfied public—if these reforms finally bring a better service to the patient, for whom the institution is, after all, conducted.

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## RETURN OF THE TULANE UNIT (BASE HOSPITAL 24).

The Tulane Base Hospital Unit, known as Base Hospital No. 24, left New Orleans in September of 1917, the first complete hospital unit to be organized in the South. It was a true university unit, as its personnel in the medical and surgical staffs was made up wholly from the faculty and from the alumni of the Tulane School of Medicine. Its nurses represented the best of the New Orleans profession and the non-commissioned personnel was almost wholly of New Orleans and Louisiana origin.

After several months of postponement the unit was finally located and put to work at Limoges, in France.

The director of the unit, Dr. John B. Elliott, Jr., and the head of the surgical staff, Dr. Urban Maes, were separated from the unit, for more advanced service. These two, as lieutenant-colonels, were placed as consultants, practically in charge of their army sectors, as medical and surgical clinic consultants, respectively. Dr. J. D. Weis early was detailed to be medical liaison officer at Paris.

More than half of the original unit was detached at one or another occasion. Captains Fenner, Lemann and Lanford were each put on important detail, either in charge of smaller or larger units or where emergency called them.

The work of the unit has been a credit to Tulane University, to the medical school and to the city and State which it represented, and if no great welcome greets the unit upon its official return it will not be because the unit has not deserved it.

Drs. Elliott, Maes, Halsey and Lemann are back. Of the others, some are in the United States and the others are either on the way or soon will be.

The JOURNAL bespeaks the privilege of saying a word of appreciation to those here and to those coming, and to add that they are welcome home and we are proud to share their glory in work well done.

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## MEETING OF THE LOUISIANA STATE MEDICAL SOCIETY.

With conditions a little nearer normal this year, we should have a very good meeting in Shreveport on April 8, 9 and 10. We urge all members to make an earnest effort to attend and to contribute their share towards the success which we *must* obtain for this session.

Each can coöperate in his way and to the extent of his possibilities, and he will profit in like manner.

We would gladly have published more information regarding the meeting, but the appended letter, received in answer to our request for data, is all we have been able to obtain, though we have tried from all sources to secure what we felt would interest the members.

Fortunately, Dr. Abramson's letter covers the main points, hence we publish it in full:

SHREVEPORT, March 15, 1919.

*Editors NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.*

DEAR DOCTORS—I have not written you heretofore concerning the coming meeting of the State Society because I thought all this information was furnished from the office of the Secretary.

Arrangements for the meeting are well in hand and we hope to entertain the Society in a befitting manner. Our committee on transportation has labored for several months on the problem of securing special rates, but, so far, has been unable to obtain any concession in that particular.

The noonday luncheon on Tuesday will be tendered by the North Louisiana Sanitarium; on Wednesday by the Schumpert Sanitarium, and on Thursday by the Highland Sanitarium.

After adjournment of the meeting on Wednesday afternoon members of the Society will be taken in automobiles to view the glass factory and oil fields, and if conditions are favorable we hope to show them a real "wild well." Upon return from this trip an informal smoker will be given at the Hotel Youree.

On the last evening we shall have the usual annual meeting, when the President will read his annual message and the audience will be addressed by other prominent speakers.

I desire especially that you will request that the members will make their hotel reservations early. Address Dr. Frank Walke, chairman hotel committee, or Mr. Jennings, manager Hotel Youree. We are making every effort to see that everybody is properly accommodated, but we would request that the reservations be made at once.

Thanking you for your interest in this matter, I am, very truly yours,

(Signed) LOUIS ABRAMSON,  
*Chairman, Committee Arrangements.*

## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### THE LABORATORY AS AN AID IN THE DIAGNOSIS OF THE PNEUMOCOCCAL COMPLICATIONS OF INFLUENZA.\*

By FOSTER M. JOHNS, M. D.,

Assistant Professor, Laboratory of Clinical Medicine, Tulane University of Louisiana,  
New Orleans.

As we reflect upon the enormous mortality figures produced by the past epidemic of influenza, and then realize that, in the light of all of the post-mortem evidence now beginning to be available that a very large part of these deaths were directly due to a complicating pneumonia, the full significance of the correct diagnosis of the rapid sequence of pathologic changes in the course of the individual case of influenza may be realized.

An idea of the relative importance of the complicating pneumonias is admirably shown in an article by W. V. Brem in the *Journal of the A. M. A.* for December 28, 1918, in which, in a series of some 3,000 cases, pneumonia was diagnosed with certainty in 408 cases—an incidence of 13.6 per cent and with a mortality of 36 per cent, making the total mortality for the epidemic 5 per cent. Naturally, these figures are higher for army cantonments than we have in civil practice, but the interesting point is that in the post-mortems on all of the cases for the epidemic only two were found to have succumbed with a purely influenzal form of broncho-pneumonia.

During the epidemic, other complications than a secondary pneumonia were remarkably rare. It is noteworthy, however, that practically all observers, in their writings of recent date, hold that the epidemic infection now prevalent is being followed by increasing numbers of such pneumococcal involvements as septicemia, empyema, sinus and mastoid infections, abdominal and pelvic abscesses, cholecystitis, etc., following the comparatively mild lobular type of pneumonia.

While the laboratory findings in both Spanish influenza and its

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\*Read before the Orleans Parish Medical Society, January 27, 1919. [Received for publication February 11, 1919.—Eps.]

complications are purely confirmatory in character to the clinical diagnosis, and are in no way specific in the sense of the Widal reaction for typhoid, or the finding of the malaria plasmodia in malaria, still, when properly interpreted, the evidence shown in the blood, urine and sputum will not only be the addition of positive evidence as to the correctness of diagnosis of a complication, but in a negative way tend to prevent the occasional error of diagnosis so prevalent in epidemic and near-epidemic times.

Some of the more constant laboratory findings, such as the blood count, have been so altered by the combination, frequently, of such diseases as influenza and pneumonia, in both of which the blood counts in uncomplicated cases are so diametrically opposite that a good deal of confusion has arisen in interpreting the laboratory findings, and it is for this reason that I have selected the present subject for discussion.

*The Blood.*—Whatever may be the etiologic factor in the production of Spanish influenza, as we now see the disease, it is most certainly characterized by a toxemia that exerts a more specific depressant action on the production of leucocytes than we are usually familiar with. This results in uncomplicated influenza in an absolute leucopenia so characteristic of the disease.

This depressant action on leucocyte production so modifies the blood count, both total and differential, that a rapidly following pneumonia of either lobar or lobular types, and certainly due to the pneumococcus, will only increase the count several thousand cells. These leucocyte determinations show such low variations as from 6 to 8,000 in the average influenza to 10 to 12,000 with the development of the pneumonia. This difference is slightly accentuated in the differential counts, the usual 40 to 60 per cent of neutrophils running up to 80 to as high as 95 per cent.

Pneumonias developing late, or after the influenzal process was on the wane, run more true to form and showing from 15,000 on up, with a corresponding increase in the percentage of neutrophils and the diminution of the eosinophiles.

While these pictures are only too often the source of little positive information from a diagnostic standpoint, from the prognostic standpoint they have proven of inestimable advantage. Following the onset of the pneumonia a stationary or falling leucocytosis came very near always indicating an unfavorable termination.

A sudden increase of leucocytes marked practically all of the

extensions of the pneumonic process to the pleura, mastoid or cerebral meninges. These latter complications were practically all following the pneumonia and were removed from the inciting influenza by two or more weeks.

We have made any number of blood cultures which have proven invariably negative, these tallying with the experiences of the army laboratories, where routine blood cultures are made in all fever cases. This is rather surprising, as the usual run of pneumonia cases gave in past years a rather high per cent of positive findings.

*The Urine.*—Influenzal patients have almost all shown the effect of the toxemia on the kidneys by the presence of a variable quantity of albumin accompanied by hyalin casts, but the rather sudden appearance of considerable quantities of albumin, with numerous hyalin and epithelial cell casts, was most characteristic of the onset of consolidation. Enormous numbers of granular casts soon made their appearance, and, in many cases, blood.

*The Sputum.*—The pneumonia following influenza has almost always been lobular in character, the type of organism seemingly being due to the variety of pneumococci, streptococci, staphylococci or micrococci that predominated in the respiratory passages of the individual when becoming ill. This renders the diagnosis of pneumonia of this type rather difficult of diagnosis to the microscope. However, lung sputum collected early, washed free of the ordinary contamination and appropriately stained, gives a wealth of information as to the type of infection present in the lung itself. This, coupled with the clinical findings alone, gives an almost certain diagnosis.

Where from ten to twenty cubic centimeters of lung sputum can be collected, the rapid direct-sputum typing of Krumweide renders a certain specific diagnosis practicable in the majority of cases. This test depends upon the extraction of an antigen from the pneumococci in the sputum itself, and this extract is then precipitated by the various I, II, IIa and III type sera prepared by immunizing rabbits with known strains of pneumococci. Reaction with this test is certain proof of the presence of a pneumonia from the number of pneumococci necessarily present in a given sputum and of a fixed type. The drawback comes in the large number of type IV infections seen in broncho-pneumonia, and against which a type serum is not practicable, owing to the large number of strains comprising the group.

While it is certain that the typing of pneumonia sputum is not as valuable in post-influenzal pneumonias as in ordinary lobar pneumonia, it is extremely valuable as a prognostic agent, type IV being much less severe than either I, II or III. I wish to thank Dr. Mattes for checking type IV by Avery method and the Rockefeller Institute for the type IV agglutins.

*Pleural and Spinal Fluids.*—The direct microscopical examination in both pleurisy with effusion and pneumococcic meningitis is typical and diagnostic. In the case of pleural exudates the question of paramount importance is one of operation for drainage or not. Many of the small localized and definitely infected pleurisies that I have studied in this epidemic have shown a tendency toward auto-sterilization and absorption following the withdrawal of small quantities for exploratory purposes. Comparative cultures from these repeated aspirations have shown the need for drainage in several instances, and *vice versa*.

#### DISCUSSION OF DR. JOHNS' PAPER.

**Dr. C. C. Bass:** In making observations upon any phase of the disease under discussion we must remember that during the prevalence of any disease in epidemic or pandemic form there are many instances of erroneous diagnosis. This is especially true in the case of mild diseases in which there are no infallible, clear-cut diagnostic signs or symptoms, such as the so-called "influenza" is. From the standpoint of the subject of Dr. Johns' paper, it would make no difference if cases of "influenza" are not diagnosed, but calling other diseases "influenza" would lead to the improper application of observations.

Barring rare exceptions, there is definite rise in the leucocyte count whenever pneumonia supervenes upon "influenza," as Dr. Johns has indicated in his paper. The rise is not as great as in pneumonia not complicated by "influenza," and in rare instances there may be no rise. The average of a large number of cases of pneumonia following influenza reported in the last *Journal of the A. M. A.* was about 15,000 or 16,000. The average of pneumonia, not preceded by "influenza," would fall between 20,000 and 30,000.

The greatest information from the total leucocytes count in the diagnosis of pneumonia following influenza is obtained in cases where counts have been made before the pneumonia set in. A sudden, though moderate, rise from the previous known low count is more valuable in indicating pneumococcus invasion than a higher count might be when the previous range was not known.

The differential count showing the presence of the "septic factor," with the characteristic great decrease or absence of eosinophiles, is also valuable, because, regardless of the absence of leucocytosis or even in the presence of a leucopenia, the "septic factor" is always present in pneumonia due to pneumococcus.

**Lieutenant Commander R. B. H. Gradwohl,** U. S. Naval Hospital, New

Orleans: I wish to thank the officers and members of this Society for their courtesy in permitting me to be present this evening and to have the privileges of the floor. I have but little to add to what has already been said on the subject of this disease. There are one or two points, however, that might well be alluded to. In first order I wish to state that I am one of those who believe that neither the causative factor nor the manner of spread of this disease has as yet been definitely established. The relatively small number of workers who have claimed to have found and isolated the Pfeiffer bacillus speaks against this organism being the microbic cause of what, for want of a better name, we have nicknamed the "flu." I want also to voice my doubts as to the exactitude of identification of the Pfeiffer bacillus by some of the reporters of this work. It is commonly the practice to call a short rod found in the sputum of these cases the Pfeiffer bacillus and to let it go at that. Cultural characteristics and biological behavior are not always sought for. Granting, however, that the Pfeiffer bacillus actually has been isolated in some of these cases, may it not be explained on the basis that there were some cases of real la grippe mixed up with this new disease? We ought to go slow, therefore, in assuming that this is really influenza and that the Pfeiffer organism is the offending organism.

Might I not at this point call your attention to the rather remarkable set of experiments recently conducted by one of the officers of our corps at Boston? These experiments have recently been noted in one of our confidential bulletins and possibly are unknown to you. They will soon be issued in the regular channels of medical literature. Two sets of experiments were carried out jointly by Lieutenant Commander M. J. Rosenau, M. C., U. S. N. R. F., and Lieutenant W. J. Keegan, M. C., U. S. N. R. F., and by Surgeon Joseph Goldberger and Assistant Surgeon G. C. Lake, United States Public Health Service, at the United States Quarantine Station, Gallups Island, Boston, Mass. The subjects are sixty-eight volunteers from the Navy Detention Camp there. The experiments consisted of inoculations with pure cultures of Pfeiffer bacillus and with secretions from the upper respiratory tract and with blood from cases of influenza. Cultures of the Pfeiffer bacillus were instilled into the noses of these volunteers, and none contracted the disease. Filtered and unfiltered secretions from the upper respiratory tract of typical cases of influenza actively infected were placed in contact with the respiratory mucosa by means of swabs, sprays, into the nose and throat. This was repeatedly carried out and none contracted the disease. Each volunteer was then instructed to converse with patients and then the patients coughed directly into their faces, each volunteer thus coming into contact with at least ten true cases of influenza. None developed influenza. The same set of experiments were carried out in San Francisco by Surgeon G. W. McCoy, of the United States Public Health Service, and by Lieutenant De Wayne Richey, of the United States Navy; none contracted the disease. I cannot refrain from alluding to the fact that these volunteers displayed a very fine spirit of courageous sacrifice in thus submitting to an experimental investigation for the good of humanity, with a full knowledge of the fact that they were risking their lives.

So far as the pathology and treatment of the cases at the United States Naval Hospital at Algiers is concerned, I wish to state that we have seen the prominent feature at autopsy there of pulmonary destruction by the ravages of this disease. This destructive tendency is, in the main, a purulent one, with lung abscesses and pus collections in the

pleural sac. The same widespread and disconcerting broncho-pneumonias have been seen there as elsewhere.

Treatment: One speaker has alluded to the practice of blood-letting at our hospital; I must frankly confess that I have seen no benefit at all from this practice; nor have we had any appreciable success with the use of vaccines.

One point in conclusion: The word "acidosis" has been used by some of the speakers here in explaining the toxemic or unusually severe symptomatology of this disease. Without decrying for one moment the good results which they state they obtained in the treatment of these symptoms by means of the intravenous use of solutions of glucose, I would suggest that some direct tests for acidosis ought to be applied before we can properly call this state one of acidosis. It may be acidosis, but, in the absence of the use of the Van Slyke or the Marriott methods, we are not at all warranted in speaking of it as such.

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## IS ARGYROL USELESS?

By HENRY DICKSON BRUNS, M. D., New Orleans.

At the last meeting of the Louisiana State Medical Society I had the honor of reading a little paper, "On Some Minor Matters." In the course of an appreciated, complimentary discussion following the reading, Dr. T. J. Dimitry, of New Orleans, said:

"Unfortunately, he (Dr. Bruns) did not mention anything as to argyrol. I wish he had done so, \* \* \* because I believe argyrol is to suffer the same condemnation we have given to boracic acid. It really does little good when instilled into the eye. \* \* \* I would say that its substitutes are every bit as good, and at the best the borax is equal to the argyrol."

I replied:

"I did not say anything about argyrol, yet I must disagree with Dr. Dimitry's prophecy."

Soon after its introduction, I began to experiment with argyrol, and came to believe in its value in certain diseases of the eye. Dr. Dimitry and several of our hearers were aware of this, and should I now permit our confrère's criticism to go unchallenged to the audience before whom it was made, I would seem to have changed my belief, to the disparagement, in their eyes at least, of what I think a valuable remedy. I do not wish to pontificate, as our French friends say, but to give as briefly as possible the reason for the faith that is in me—my own experience solely. That experience has taught me that argyrol, like all useful agents, is valuable only when employed with a full appreciation of its limitations—limitations, first, as to the strength; second, the intervals,

and third, as to the duration of its application. A strength of 2 or  $2\frac{1}{2}$  percent—ten or fifteen grains to the ounce at most—possesses all the valuable properties of the drug and reduces to a minimum all unpleasant or harmful effects. Such a solution is un-irritating, seems to be most diffusible, and great diffusibility is one of the valuable properties of argyrol, while its specific gravity is sufficient to float out of the culs-de-sac every particle of pus or mucus. The coloration it imparts to such otherwise invisible particles makes argyrol a very useful adjuvant in thoroughly cleansing the eye when alternated with a borax wash or other neutral solution. Solutions of 25 to 50 per cent in strength are, by their thickness, made less diffusible; they seem to form with the secretions uncomfortable clots, and they are irritating; so irritating that after a few instillations it is hard, or even impossible, to persuade the patient to continue their use.

The intervals at which the solution is instilled must be short if we are to achieve the results for which we hope. Instillations should be made every hour; in the severest affections every fifteen minutes, and in the mildest at least every two or three hours. It is, probably, the use of argyrol in solutions of too great strength and its instillation at too prolonged intervals that has caused the greatest number of disappointments in its use and has led many to cast it aside.

The use of argyrol must never be too long-continued. Probably two weeks is the utmost length of time it can be used with benefit. After that, even the weaker solutions begin to irritate the conjunctiva. We must not forget that argyrol is no astringent. By undue persistence in its use we can produce one of the very mischiefs—irritation of the conjunctiva—that we are seeking to subdue. Moreover, as every one now knows, only fresh solutions made from fresh material can be used, even in the weaker solutions, without producing redness, smarting and watering of the eyes.

These conditions being observed, I have used, and continue to use, argyrol with undisappointed expectation of benefit in:

Cleansing the conjunctival sac, especially before all operations.

Cases of beginning epiphora without obvious cause, instilling it from four to six times daily, and in almost all cases of epiphora for testing the openness of the lachrymal passages.

Simple corneal ulcers, erosions, excoriations; especially the marginal ulcers of the old, where a non-irritating application is often indicated.

Mild cases of conjunctivitis, alternated with a borax-wash.

Cases of Koch-Weeks bacillus conjunctivitis. If, as first suggested to me by my colleague, Dr. E. A. Robin, the instillation of a 10 or 15 per cent solution of argyrol is alternated every hour or two with a solution of zinc sulphate of half a grain, or a grain, to the ounce, depending on the severity of the case, the action seems specific. When the instillations are properly made there is always decided improvement in twenty-four hours. Indeed, this plan of treatment is effective in all types of acute conjunctivitis accompanied by profuse secretion, not gonorrheal. That the zinc sulphate is not the only active agent in every instance, as one might assume, is illustrated by the following case:

**R. N.**, a white boy of eleven years, having a severe acute conjunctivitis, with abundant discharge, said to be in the third day of the disease, presented himself in the clinic on August 22, 1918. The argyrol-zinc treatment was ordered, the alternations hourly. A culture from the conjunctival discharge was reported to contain streptococci and micrococcus catarrhalis. On August 28 he returned practically well. Questioning showed that, through some misunderstanding, the mother had never obtained the zinc sulphate solution; argyrol alone had been used every hour.

Cases of ophthalmia neonatorum: If instilled every fifteen, thirty or sixty minutes, the 10 or 15 per cent solution of argyrol is an efficient remedy. Remembering that argyrol is without astringent action, after all swelling and pus have disappeared for a day or two, we must, in the great majority of cases, begin the application of weak silver nitrate solution to the everted lids, continuing until the conjunctiva has become normal. This is the established treatment in our clinic at the Eye, Ear, Nose and Throat Hospital, and the records, so far as I know, show no case either of an eye having been lost which was not already destroyed, or of a cornea having become appreciably scarred which was not already invaded at the time the child was first presented for treatment. There was certainly one exception. In the case of an obstinate, obdurate, stupid mother, her infant lost an eye because, in spite of argument, persuasion and threat, we could not make her care for it even tolerably. It is only fair to say, however, that a majority of these infants are negroes or of negro blood. I believe, and Dr. Chas. W. Kollock, of Charleston, S. C., also thinks that this race enjoys a relative immunity to infections of the conjunctiva with the gonococcus. There is a greater tendency to recovery and less liability to corneal ulceration. It is certainly amazing to observe the swollen, distended lids, the corneæ immersed in pus, and to be

told by the mothers of these babies that the conditions have been present for a week or two, or more, and then be unable to detect the slightest invasion of the corneæ. I do not mean to imply that the white babies do not do as well; they do, but they are usually brought for treatment much more promptly than the negro infants. Nearly all, too, white and black, are breast-fed.

Nor can it be said of all these cases that the argyrol is useless; that in the natural course of the disease swelling and pus subside and disappear and that the silver nitrate applications effectually put an end to the disease.

Only a short time ago a white infant one month old was brought to me to be discharged from the clinic, cured. The mother said it had been presented for treatment on the fifth day of the disease (not ophthalmia neonatorum strictly). Smears of the pus showed gonococci. Fifteen per cent argyrol solution had been ordered instilled every fifteen minutes during the day and as often as possible during the night, on August 5. On August 7 this was reduced to every half hour. August 8, decided improvement was noted. On August 21, the sixteenth day of treatment, the child was discharged perfectly well, nothing but the argyrol solution having been used. I did not see this case when it entered the clinic, but the testimony of the staff was unanimous that its appearance had been unusually threatening, the swelling great and the purulent discharge profuse.

I wish to deal here, as far as possible, with what seem to be facts rather than with opinions. As in mathematics the greater contains the less, so sometimes in therapeutics. One convinced of the efficacy of argyrol in gonorrheal ophthalmia might be readier to admit the possibility of its value in other acute conjunctival diseases. I have, therefore, reviewed all the histories of such cases treated at our clinic during the years 1914, 1915, 1916, 1917 and 1918, in which gonococci were found in the smears by our pathologist. There are records of fifty-nine cases. Of these, twenty-five never returned after the first or second visit, or other plans of treatment were pursued. In thirty-four cases, therefore, nothing but instillations of 10 or 15 per cent solutions of argyrol were instilled until swelling had subsided and the discharge had virtually disappeared. After that, in the majority, solutions of silver nitrate were applied to the everted lids until the conjunctiva seemed normal. The instructions, iterated and reiterated, were to drop the solution into the eyes every fifteen minutes, day and night, the

patient recumbent and the lower lid gently drawn down with the finger on the *cheek*. By no means was any attempt to cleanse the lids to be made. The excess of argyrol and pus was to be wiped from the cheek with moist cotton pledgets or gauze. The argyrol solution was to be instilled into the unaffected eye half as often as into the diseased one—every other time. At each daily visit the surgeon cleansed the lids, manipulating them as little as possible, with a warm borax-boracic-camphor-water solution poured gently from an undine. I have arranged the cases into three groups according to age.

In the first group the eleven patients varied in age from thirteen months to fifteen years, the average being six and one-half years. Six were white, four negroes and one mulatto. Males 9, females 2. The cases were presented for treatment in from one to six days after the mothers had noticed the affection, the average time being three and one-half days.

Six (6) cases were treated with argyrol alone, of which three brought for treatment on the second, third and sixth days of the disease respectively) were discharged cured at the end of twenty-four, twenty-one and seventeen days, respectively. Two with whom treatment began on the fifth day, deserted "practically well" after nineteen and eleven days of treatment each. One, white, *aet.* twelve, in the fourth day of the disease. On the second day of treatment, pus formation seemed to have ceased; but on the fourth day a small spot on the cornea just below the pupillary area was seen to be stained with argyrol; on the seventh day the eye was practically well, but the conjunctiva of an empty socket on the other side had become infected. The case recounted on page 429, well in sixteen days under argyrol alone, should be included here.

In one case (7), white, aged thirteen months, said to be in the second day of the disease, silver nitrate solution, 1 per cent, was instilled once at the first visit, after that nothing but argyrol solution being used. At the first examination a small area of the lower quadrant of the cornea was observed to be excoriated. In forty-four days the eye was well, a small scar remaining at the site of the ulcer.

In one case (8), white, aged five years, said to be in the third day of the disease, there was extensive involvement of the cornea. Nothing but argyrol was used until the tenth day, when 1 per cent solution of silver nitrate was applied. Perforation of the cornea

took place on the fourteenth day. Practically well in thirty-seven days, with a leucoma adherens occupying the lower third of the cornea.

In three cases (9, 10, 11) silver nitrate solution was applied when swelling and pus had virtually disappeared; in one, after twenty-fourth day of treatment, the patient deserting practically well on the forty-first day; in one, after the fourth day, which was discharged cured on the twenty-eighth day, and in one on the forty-first and last day, just before being discharged.

The second group comprised ten cases, the ages running from sixteen to twenty-nine years, the average being eighteen and one-half years. All were males; two white, six negroes and two mulattoes. Six were treated with argyrol alone. One negro, *aet.* twenty, second day of disease, was discharged cured after fifty-six days of treatment. On the fifty-first day a note says: "Ulcer developed, superior quadrant of cornea. Tinct. iodin touched to same"; the next day, "Improved," and on the last day, "Yellow oxide salve." A nubecula, therefore, probably remained. Two negroes (2 and 3), second and fourth day of the disease, *aet.* sixteen and twenty, deserted on the sixth and eighth day of treatment, one "almost well," the other "very much improved; very little secretion." One (4) other negro, *aet.* twenty, in the ninth day of the disease, deserted after the sixth day of treatment, "somewhat better; less secretion." Another (5) negro, *aet.* twenty-eight, in the fifth day, deserted after six days of treatment. On the second day the note says: "Cornea cloudy." On the third day, "Much improvement. Cornea slightly infiltrated." On the sixth day, "Cornea clearing up." One (6) negro, *aet.* twenty-eight, both eyes affected for a week; the right cornea "involved"; vision reduced to finger-counting at three feet, deserted after forty-three days practically well, V., O. U., under atropin,  $20/20$ .

In four cases silver nitrate was also used. One was a white man, twenty years old, seen on the third day of the disease. The silver solution, 1 per cent, was applied once only, at his first visit. He was allowed to return to his home out of the city on the nineteenth day, practically well, with vision improved from  $20/70$  to  $20/20$ . This was a case of medium severity, but on the sixth day there is a note: "Cornea stained slightly."

In two other cases, both mulattoes, seen on the second and on the eighth day of the disease, the silver nitrate solution was applied in one case once, and on the eighth day of the disease, when

he deserted, "much improved" In the other case it was used on the thirtieth day. On the twenty-first day a "corneal ulcer" is noted, which was touched with tincture of iodine by the assistant surgeon in charge. Six days later improvement is noted, and he was discharged cured on the ninety-fourth day, the last thirty-three days being devoted to an attempt to clear the leucoma by the use of dionin.

In the last of these cases (negro, *aet.* twenty), seen on what he said was the eighth day, both eyes were affected and "minute infiltrations" of both corneæ were noted at the first visit. R. E. V.=1. p. L. E.=fingers at eight feet. There was perforation of the right cornea on the sixth day of treatment, and of the left on the thirteenth day; in both instances near the upper margin. On the sixteenth day of treatment the discharge had ceased and the application of a 1 per cent silver nitrate solution was begun. On the twenty-first day it was noted that the perforated cornea of each eye was beginning to heal. On the seventieth day he deserted, "practically well," but with leucoma adherens O. U. and V. R. E.= $20/100$ , L. E.= $20/30$ .

In the third group there are twelve cases, varying in age from thirty to sixty-three years, the average being forty-eight and one-half years. Four were white, three mulattoes and five negroes.

One negress, aged thirty-three, in the second day of the disease, a mild case, was treated with 15 per cent solution of argyrol alone, instilled every hour. On the seventh day, being practically well, she deserted; V. R. E.= $20/30$ , L. L. E.= $20/20$ .

One (2) a fifty-year-old negress, who said her eye had "been this way" three weeks, had an open sty on the upper lid of the affected eye. Treated for eighteen days with argyrol alone, she had grown much better, when "zinc sulphate" solution (!) was substituted by the assistant surgeon in charge and continued for eleven days, when the argyrol was resumed. Discharged on the fifty-third day, with vision improved from  $20/50$  to  $20/20$ .

3. Negro, *aet.* thirty, eye affected five days. Argyrol alone for four days; when discharge having entirely disappeared, silver solution was also used with gradually diminished frequency for thirty-four more days, when he was discharged cured with vision improved from finger-counting at two feet to  $20/50$ .

4. White man, *aet.* fifty-eight, says his eye has been affected ten days. Argyrol alone for seven days and then silver solution gradu-

ally diminished for three days, when he deserted practically well. Discharge disappeared entirely on the third day. V. from  $20/100$  to  $20/70$  under atropin.

5. Negro, *aet.* thirty-five, affected four days. Argyrol alone for six days and then silver nitrate for twenty-eight days more, when he is discharged cured. Discharge disappeared on the fifth day. V. from  $20/70$  to  $20/15$ .

6. Mulatto woman, *aet.* sixty-three, eye affected ten days. Notes defective, only extending over ten days. No treatment noted other than argyrol, 15 per cent, every thirty minutes, save application of silver solution to *other eye* on the eighth day. Ulceration of cornea at the upper limbus is noted on the ninth day. History marked, "Discharged cured."

7. Negro, *aet.* forty-six; both eyes have been affected for a week, he says, and both corneæ are ulcerated. Argyrol alone used six days and then silver nitrate in addition. On this day patient squeezed out lens of L. E. On the twelfth day of treatment the right cornea was perforated. On the thirty-ninth day, smears showing the absence of gonococci, he was discharged. V. R. E. =  $20/200$ .

8. Mulatto woman, *aet.* thirty-eight, who says her "eyes have been this way eight days." On the fourth day of treatment infiltration of the right cornea is noted. On the eleventh day, there being little, if any, improvement, 1 per cent silver solution is applied to the conjunctiva of the carefully everted lower lid of R. E. It is applied in this way to each eye until the forty-sixth day, when it is applied to *both* everted lids of each eye. On the fiftieth day the corneal ulcer was touched with tincture of iodin. She was discharged cured on the eighty-eighth day, much time having been spent on the treatment of the leucoma.

9. Negro, aged thirty. Seen on fifth day of disease. R. E. cornea almost wholly destroyed. Better from the fourth day. Argyrol alone until fourteenth day. Discharged on twenty-eighth day; cornea of R. E. opaque. L. E. V.  $20/15$ .

10. White woman, *aet.* thirty. Seen on fourth day of disease. On third day of treatment a slight excoriation at the lower limbus is noted. On the fourth day, "almost well; no discharge; corneal lesion remains slight and superficial." Argyrol was used alone until the fifth day, then silver nitrate solution. Discharged cured on the twentieth day, V. =  $20/20$ .

11. White man, *aet.* thirty-one. Duration of disease uncertain, but long. R. E. cornea sloughed away. L. E. also affected and presents a traumatic cataract. On the fifth day lens and vitreous escaped from R. E. Argyrol alone until the thirty-fourth day, and then silver nitrate also. His L. E. escaped undamaged.

12. White man, *aet.* thirty-nine, in second day of disease. Both eyes affected, but a very mild case. V. R. E. =  $20/30$ ; L. E. =  $20/20$ . Argyrol alone until the ninth day of treatment, then silver nitrate, one-fifth of 1 per cent. Quit cured on the twenty-seventh day.

SUMMARY.—The records of the Eye, Ear, Nose and Throat Hospital for the five years 1914-1918 show fifty-nine cases of gonorrheal ophthalmia, the diagnosis being confirmed by the microscope.

Of these fifty-nine cases, thirty-four are available for the purpose of this study; whites thirteen, negroes fifteen, mulattoes six. Males were twenty-six, females eight. The ages ran from thirteen months to sixty-three years.

Of the thirty-four, four were admitted to the hospital certainly; perhaps one or two more. The others were treated as "out-patients."

Treated with argyrol alone, fourteen cases. Of these, five were discharged cured in fourteen, nineteen, twenty, forty-one and sixty-one days; four deserted practically well after eight, twenty-two, twenty-four and fifty-six days, and five deserted improved after from five to eleven days. The cornea was found involved in three cases; it became involved during treatment in two others; in one on the fortieth day, but neither perforation nor serious leucoma resulted in any. It was noted that the discharge had disappeared on the fourth day of treatment in two, on the fifth in one, and had greatly lessened on the fifth day in one case. Both eyes were found to be affected at the first visit in two cases. (Case mentioned on page 429 included here.)

In nineteen cases silver nitrate was used in addition to argyrol in the treatment. In two cases it was used once, when the case was first seen. One discharged cured in nineteen days, and one, in which the cornea was found to be involved on the first visit, quit practically well after forty-five days.

In nine cases the silver nitrate was applied on the fourth to the eighth day of treatment. Of these, six were discharged cured in from twenty-one to thirty-nine days.

Both eyes were found affected at the first visit in one case. The

cornea was badly involved and was perforated later in one case; it became slightly involved during treatment and afterwards cleared up in one case. The three other cases deserted in from eight to ten days much improved. Disappearance of discharge noted twice on the third day, and three times on the fifth.

In eight cases the silver solution was used from the tenth to the thirty-eighth (last) day of treatment. Of these, one deserted on the forty-first day greatly improved. All the other seven were discharged cured, so far as the acute condition was concerned, in from twenty-four to one hundred days, but in four the cornea was found to be involved at the first visit and later became perforated. In one case it became ulcerated and in another perforated during treatment. In three cases both eyes were affected when the patient was first seen.

Thus there were in all nine cases in which the cornea was found to be involved at the first visit, and of these five were perforated. During treatment the cornea became involved five times, and in one was perforated; that is to say involved, in spite of treatment, in about 15 per cent of the cases and perforated in about 3 per cent.

But perhaps the most striking fact is that, although no attempt was made to protect the healthy fellow-eye, save by dropping into it the argyrol solution half as often as it was dropped into the diseased eye, no unaffected eye ever became infected during the course of treatment, with one exception. This exception very emphatically "proved the rule." It occurred in the case of a white lad of twelve years, whose L. E. had been enucleated several years ago. The assistant surgeon in charge of the case, not dreaming that the empty socket might be in danger, did not drop the argyrol solution into it, and infection took place.

Used in the manner described, I have seen but two cases of staining of the cornea by argyrol. In both the area was minute. I presume that, though small, the ulceration was deep.

With the various substitutes for argyrol I have had little or no experience.

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## PRACTICAL CONGENITAL SYPHILIS.

By CHARLES JAMES BLOOM, B. Sc., M. D., New Orleans.

Undoubtedly the choice of the above subject bears criticism from two viewpoints—namely:

- (1) The use of the word "practical."
- (2) The commonplace subject "syphilis."

The average reader of medical journals becomes very much annoyed by persistently reviewing articles pertaining to the subject of syphilis, remarking *ad libitum*, "It is as old as the hills"; "they cannot tell me much about syphilis"; "give us something new," etc.; but gentlemen, we falter when we are placed on record as uttering such statements. Indeed, many of us overlook more than the mere reading of articles bearing on lues; we fail utterly to diagnose the disease in its incipient expression; we lag sadly when attempting to study in detail this social disease which is directly responsible to all mankind for so much suffering—yes, both the infant and the adult.

Picture the infant, virtuous in its entirety, the essence of loveliness and the exemplification of happiness, born, harassed, hampered, diseased by this the lowest form of animal life. Can any one describe a more disastrous agent acting as a handicap in our race and desire for existence, actually poisoned by the fangs of this dreaded monster? If such be true, and our children are forced to suffer as a consequence from "the sins of the parents," etc., should it not be the ambition of the physician to stress every point in attempting to recognize syphilis at the time of birth, and to limit the destructive influences noted by its presence?

Syphilis is not practical—most impractical when the question of diagnosis is considered. It is true that "syphilis is syphilis," no matter where seen, but it is equally certain that climate, race, food, etc., all have their respective influences. Many of us believe the question of determining cases of congenital lues a simple procedure. In this relation we are misguided in most cases, and particularly with regard to latent symptoms; these are most difficult to interpret correctly, for more often they are wanting.

The method assumed by me places the burden of proof in the hands of the physician; the latter must prove that the infant has not syphilis.

During the past five years the author has had ample opportunity to study intricately, in the outdoor clinics of our hospitals, this vital subject. This paper has no tinge of originality; it does not tend to prove or disprove the laws of Colle and Profeta; the relative value of the different laboratory aids does not enter into this discussion, nor does the term "hereditary" bear argument. The real aim of this short narrative is to stress the more common symptoms and to ask minute coöperation in endeavoring to minimize the future evils by *diagnosing the early and recent symptoms* of congenital lues.

Be mindful of the fact that syphilis was described in the Old Testament, and as a clinical entity was first illustrated when Charles VIII (1494-1495) lay siege to Naples, and still we have a great deal to learn about its clinical picture. Our city offers a wonderful opportunity for the study of lues—geographical, social and environmental factors—and finally let the importance of this topic be ever with you, for a great number of cripples, idiots, imbeciles and the insane are directly responsible to syphilis and to the doctors.

*This paper is based on fifty cases.* In each case the Wassermann of the mother was positive; in four cases the father's Wassermann was also positive. A positive Wassermann was also secured in all of those cases over six years of age.

*Family History:* 1 miscarriage in 1 case.  
2 miscarriages in 3 cases.  
3 miscarriages in 2 cases.  
Still-birth in 1 case.  
Death in infancy in 1 case.  
Total, 8 cases—16 per cent.

*Age, Sex, Race:* Under 12 months, 23 cases.  
Under 6 years, 30 cases.  
6 years to 13 years 20 cases.  
Male, 26; female, 24; white, 38; negro, 12.

## CHILDREN UNDER SIX YEARS.

SYMPTOMS—OBJECTIVE.  
I. EARLY OR RECENT.

Case.	Age.	Eruption.	Peeling—hands and feet.	Wasting.	Snuffles.	Cry (hoarse) laryngitis.	Facial expression.	Tissues.	Mucous patch.	Malformed nail.	Parot's pseudo parotitis (osteochondritis) epiphysitis, etc.	Thickened eyelids and eyebrows.	Hypertrophied a) Liver. b) Spleen. c) Glands.	Digestive disturbance.	Wig.	Alopecia.	Nephritis.	Hairy skin.	Nervous symptoms: (Restlessness) (Convulsions)	Prematurity.	Dactylitis.	Number of Symptoms.
No. 2.	5 years.	+											L. G.	+	+				+			3
7.	4 years.	+										++										5
9.	3 weeks.	+									+	++										6
13.	8 years.	+											L. G.						+			7
14.	11 years.	+																				8
15.	4 years.	+																				6
17.	37 days.	+																				9
19.	1 month.	+	+										L. G.	+				+				7
20.	2½ month.	+											L. S. G.	+								9
21.	6 month.	+											L. S. G.	+								9
22.	8 month.	+											L. S. G.	+								8
24.	1 year.	+											L. S. G.	+								4
27.	3 months.	+																				6
28.	4 years.	+																				4
29.	11 days.	+											L.	+			+					5
30.	5 weeks.	+																				6
33.	11 months.	+																				0
34.	11 months.	+																				4
37.	2 weeks.	+																		+		5
38.	9 weeks.	+																				7
39.	2 weeks.	+																				5
40.	2 months.	+																				5
41.	2 months.	+																				5
43.	3 weeks.	+																				6
44.	3 months.	+																				5
45.	6 weeks.	+																				4
46.	2½ weeks.	+																				2
48.	5 weeks.	+																				3
49.	2½ weeks.	+																				3
50.	3 weeks.	+																				12
80.		16	8	18	24	10	16	0	3	2	7	4	L. S. G.	10	16	13	3	2	4	2	0	Average, 5+

*Eruption:* The eruption was seldom seen at birth, generally developing after several weeks had elapsed. The lesions noted were of the maculo-papular variety, and were seen on the extensor surfaces of the extremities, usually bilateral and symmetrical; occasionally viewed on the neck, cheeks and forehead. Sometimes scales (fine) were detected. The appearance is gradual. The scaling or peeling of the hands and feet was coincident with the eruption. A copper pigmentation often told the tale of a previous specific lesion.

*Wasting and Marasmus; Digestive Disturbances:* Many infants, apparently healthy at birth, without warning become emaciated; others exhibit apparently a toxic diarrhea, not traceable to indiscretion of diet or improper methods, and, despite heroic measures undertaken to assist the mother and also the child, the stool continues frequent, greenish in color, and containing a rather large amount of mucus. It is stopped when the specific treatment is given.

*Snuffles:* This is undoubtedly the most valuable symptom among the early manifestations. All sorts of opinions are expressed, most often adenoids and tonsils. In only two cases where the "snot" was noticeable were the conditions cases of adenoids; in the remaining cases the specific was for the etiological factor.

This symptom might simulate a mild coryza on the one hand; at the same time other cases might be so pronounced as to justify in the minds of a layman an operation, for, in this, children's breathing is most difficult.

*Cry (Hoarse) Laryngitis:* A cry that one should associate with an older child who is suffering from an attack of mild laryngitis, rather characteristic to one accustomed to hearing it.

*Facial Expression:* The greater per cent of syphilitic children all have a haggard and old expression, and infrequently, although you might not have seen the infant at birth, the picture is so impressive that the mother will voluntarily tell you, "Yes, my baby looked like an old man."

*Fissures and Mucous Patches:* These expressions of lues are not as common as text-books would lead you to believe. Occasionally you detect mucous patches, and only in one case did I ever note a condyloma.

*Malformed Nails and Onychia:* Authorities tell us that the finger nails of this disease, when they are present, are most significant. In one case the finger nails were peculiar—very hard, but

distinctly short. Onychia was observed in one case, photographed in this series.

*Parrot's Pseudo Paralysis and Weakness of Muscles:* Under this heading are included all the pathological expressions of the luetic bone changes. Without warning the child awakens, unable to move one or more of its extremities, generally one, or, when moved, the infant shrieks with pain. Coincident with this the muscles are so atrophied that the combination tends to convey the impression of paralysis.

*Thickened Eyebrows, Eyelids, Hairy Skin:* So seldom seen as not to warrant a prolonged description. When the hair is present there are spots on the arms, thigh and back that are more pronounced.

*Hypertrophied Liver, Glands, Spleen:* This triad is seen, but not nearly as often as described by various teachers and writers. You will generally see that you seldom have the characteristic hardened liver with the accompanying general adenopathy involving all of the superficial groups; they are hard to touch, and as a rule have a tendency to be discrete. As yet I have never seen a specific gland become necrotic.

*Wig; Alopecia:* Another very valuable aid. A marked amount of hair on the skull; by itself has no importance, but in conjunction with other symptoms serves as a great agent in detecting lues. Quickly following the admonition of this "wonderful head of hair" comes the grief when the greater part will "fall out." This might be the cause of a parent's visit to your office.

*Nephritis:* When this symptom exists indeed one has a great task before him. The swelling is so quick and so marked that if one be slow in determining the cause the patient will quickly succumb. Casts in great numbers are generally seen, with but a small quantity of albumen, the microscopical findings depending on the type of nephritis existing.

*Nervous Symptoms; Prematurity and Dactylitis:* These were practically wanting symptoms in this series.

*Summary—Early and Recent Symptoms:*

- (1) Snuffles, 24 out of 30 cases.
- (2) Wasting, 18 out of 30 cases.
- (3) Facial expression (old), 16 out of 30 cases.
- (4) Digestive disturbances (guess what), 16 out of 30 cases.
- (5) Eruption, 16 out of 30 cases.

As a rule, if care is exercised in an examination, an average of five symptoms will be found.



NUMBERS AND LEGENDS OF CUTS ILLUSTRATING DR. BLOOM'S ARTICLE.

- |                               |  |
|-------------------------------|--|
| (1) Luetic nephritis.         | (6a) Profile. Goiter associated with lues.   |
| (2) Luetic onychia.           | (6b) Full face. Goiter associated with lues. |
| (3) Luetic nephritis.         | (7) Hutchinson teeth.                        |
| (4) Typical luetic infant.    | (8a) Profile. Goiter associated with lues.   |
| (5) Luetic child (epileptic). | (8b) Full face. Goiter associated with lues. |

II. LATENT. Children Between Six and Thirteen Years.

Case.	Age.	Sabre deformity.	Teeth.	Eyes.	Nose.	Ears.	Stigmata.	Mental backwardness.	Boils.	Café au lait.	Ataxic gait.	Luetic.	Goitre.	Nervousness.	Symptoms.
No. 1.	9 years....		2					Second grade							0
3.	10 years....							Sixth grade							1
4.	10 years....							Yes	++						1
5.	10 years....								++						2
6.	7 years....								++						3
8.	6 years....								++						0
10.	8 years....								+	+					2
11.	11 years....			Interstitial keratitis				Fourth grade							2
12.	12 years....							Third grade							3
16.	6 years....							First grade							2
18.	6 years....							Yes	+					Shakes hands	2
23.	7 years....													++	1
25.	12 years....														5
26.	6 years....														0
31.	12 years....														2
32.	12 years....			+						+					1
33.	9 years....							Yes						+	3
36.	11 years....							Mute							4
42.	9 years....														1
47.	8 years....														1
20.	....		2	2	1	3	0	9	4	2	1	2	2	8	Average, 1½ symptoms
			S—Serrated (excluded) H—Hutchinson.	Optic neuritis.		Chronic otitis media.				Coffee-ground spots.		Excluded in average of symptoms.			

The triad, keratitis, chronic otitis media and Hutchinson teeth, are seldom seen.

In considering as a whole the symptoms associated with latent congenital lues of these twenty cases, there were only three that



presented positive pathognomonic symptoms. Compare the average number of symptoms of the latent group with the group under the recent symptoms, and the comparison will be as 1 to 5. This statement is emphatic; it should be the inspiration for a more con-



scientious examination for congenital lues at birth, even if there be no justification based on past history.

## CONCLUSION.

(1) Use every means possible to diagnose the early manifestations of syphilis, for, if undiagnosed at birth, the latent symptoms are few, or entirely wanting.

(2) Conscientiousness in behalf of the infants will mean the prevention of idiocy, imbecility and insanity and will tend to help mankind from a moral, sociological, educational and economic standpoint.

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**A NEW TECHNIC FOR SUSPENSION OF THE KIDNEY.**

By RAWLEY M. PENICK, M. D. F. A. C. S., Shreveport, La.

In presenting this technic it is scarcely necessary to review the literature further than to justify the belief that I have held, that a more satisfactory, and at the same time simple, technic is desirable in fixing the freely movable kidney.

A great deal has been written and many new procedures have been proposed lately showing that no operation now in use is generally acceptable and satisfactory to operators.

In the beginning it may be well to say that, unless a kidney produces marked symptoms, usually the group known as Dietels' crisis, its mere mobility does not justify nephropexy. It seems, however, that a kidney with excessive mobility is almost sure to give serious trouble at some time or other.

And it is well to bear in mind that in practically every case of movable kidney the abdominal walls are found very lax, demonstrating the very important part they play in supporting the normally placed organs, and the aftertreatment should take care of this condition following nephropexy.

An interesting and rather remarkable fact has been the recovery or improvement in a number of cases operated on by English surgeons of movable kidney associated with insanity. Suckling reports twenty-one cases where insanity disappeared after fixation of the kidney, and Billington reports most encouraging results obtained in the same manner.

To return to the discussion of the technic: If the capsule of the kidney or its cortex were strong enough under all conditions to hold sutures without giving away, the problem in suspension would not

exist, and the most generally employed operations in this condition at present have as a distinguishing feature the more or less ingenious placing of the sutures in the capsule or cortex, or both, that they may successfully withstand the strain while the decorticated kidney becomes adherent to the musculature of the back.

I desired to avoid using sutures in the substance of the kidney for two reasons: it is more or less injurious to the kidney and of little strength where stress is present.

This was overcome by Senn by the use of the gauze slings temporarily placed around the upper and lower poles of the kidney and later withdrawn, after adhesion of the partially decorticated kidney had taken place. As far as I am able to ascertain, Senn was the first to employ this principle. Penrose and Bayes adopted it, but used rubber tubing in the place of the gauze.

The objections to using foreign material in this work is too obvious to dwell upon, but the principle seemed to me so good and sound that I felt that the problem would be solved if I could utilize an autogenous sling, and the deep lumbar fascia immediately suggested itself as lending itself ideally for that purpose.

It is not the first time that the fascia has been used in this operation, as one operator dissected the deep fascia from the muscles in such a way as to form a pocket, but serious objection arose to this procedure. And I desire to say that if any one else has employed the fascia as I have in this operation, I have not been able to find any mention of it in the literature at my disposal.

After all, the original element in my technic is this disposition of the fascia, the remainder being simply the well-known method of stripping back the capsule and introducing sutures in each side.

It is of interest to note that Jonnesco has lately devised a similar operation, the difference being that he uses bands of the fibers of the quadratus—apparently a much more formidable operation.

The technic in detail is as follows: I use the Kelly incision, approaching the kidney through the superior lumbar trigonum, only I make the incision a little larger, if necessary. When the deep lumbar fascia is reached it is opened with a clean cut, and beginning at the lower angle of the wound a ribbon of fascia is dissected about two-thirds of an inch wide. The end is secured with a hemostat and laid aside for the present, and the operator proceeds to deliver the kidney up into the wound as usual. The perirenal fat is stripped to the hilum and the capsule incised and dissected, the sutures in-

troduced, two on each side. These sutures are caught in hemostats and laid aside while the perirenal fat is gathered by a circumferential large suture, forming a cup-shaped support under the kidney, and the ends are left long for later attachment at the lower angle of the wound in the musculature.

The ribbon of fascia is now picked up and a large chromic gut suture threaded into the end to prolong it; it is then fitted around the lower pole of the kidney, just below the hilum, and a stitch securing it to the capsule of the kidney near the front is introduced to prevent slipping. The ends of the suture, prolonging the ribbon of the fascia, are left in the hemostat while the kidney is being replaced, and the sutures of the capsule are secured in the adjacent musculature, as usual in this procedure.

When this stage is reached the kidney is placed in the position desired and the suture prolonging the ribbon of fascia threaded on a carrier or large needle and fixed in the muscles of the back, at the most convenient point, fitting snugly around the kidney and holding it securely while the denuded surface on the kidney forms adhesions.

The large sutures in the subphrenic fat securing a support under the kidney are now drawn sufficiently taut, forming a cup-shaped support. This last procedure closes the loose space under the kidney and, while it may not be necessary, it is quickly and easily done; indeed, Dr. Bartlett uses this principle alone, almost, in dealing with this type of kidney surgery. The wound is then closed in the usual way, layer by layer.

#### CONCLUSIONS.

1. The use of fascia seems logical, gives the greatest security under the severest post-operation strain, and prevents tilting, rotation and sagging.
  2. It is easily and rapidly done.
  3. Good surgery demands that we employ methods that insure the greatest security, and this technic seems to give us that security.
  4. It is reasonable to suppose that the fascial band eventually forms a stable ligamentous support that would hold the kidney in place in the absence of any other support.
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## NEWS AND COMMENT

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THE ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE, participated in by the Council on Medical Education of the A. M. A., the Federation of State Medical Boards of the United States and the Association of American Medical Colleges, was held at the La Salle Hotel, Chicago, March 3 and 4, 1919. Each body furnished a most interesting and instructive program, at the close of which the annual business meetings were held.

WHISKEY TO HOSPITALS.—The Federal authorities recently delivered fifty gallons of whiskey to the King's Daughters' Hospital, of Tyler, Texas, the whiskey having been donated to the hospital by several men who were convicted of violating the Reed Prohibition Law in the Federal court there. The whiskey will be used by the hospital for medicinal purposes and will probably be sufficient to last several years.

CONGRESS AIDS CAMPAIGN AGAINST VENEREAL DISEASES.—The sum of \$1,000,000 has been voted by Congress to aid the States in their present campaign against venereal diseases. Thirteen States have already taken up the movement.

JOURNAL OF ORTHOPEDIC SURGERY.—The *American Journal of Orthopedic Surgery* has dropped the "American" from its title, becoming the official publication of both the British and the American Orthopedic Associations. Editors from both organizations will serve, and so the whole English-speaking world will be reached.

ROALDES PRIZE.—The Roaldes prize of the American Laryngological Association, amounting to \$200, is offered this year in general competition for the best thesis on some subject directly connected with laryngology or rhinology. Papers must be in the hands of the secretary, Dr. D. Bryson Delavan, 40 East Forty-first street, New York City, prior to June 1.

PAN-AMERICAN CHILD WELFARE CONGRESS.—Through the Uruguay Legation, the United States has been invited to send delegates to the second Pan-American Congress for the Welfare of the Child, to be held at Montevideo, May 18 to 25. The congress has been postponed several times because of the war.

RESTRICTION OF GERMAN MEDICAL PRACTICE.—Evidence of American determination to prevent fraternization between Germans

and men of the United States army of occupation was given some few months ago at Coblenz, when orders were issued forbidding American soldiers to consult German doctors.

**EMERGENCY TRANSPORTATION.**—The Paris Municipal Council, during the epidemic of influenza in France, appropriated 50,000 francs to defray the expense of transportation of physicians by means of auto-taxis, in order to insure immediate medical attention for the sick.

**AMERICAN JOURNAL OF CARE FOR CHILDREN.**—With its January issue this journal became a monthly periodical, dealing extensively with the rehabilitation of the invalided soldier. The journal is in no sense a war product, as it is now entering upon its eighth volume. The editor is Douglas C. McMurtrie, of New York.

**THE AMERICAN BOARD OF OPHTHALMIC EXAMINATIONS.**—The next examination of this board will be held at Wills Eye Hospital, Philadelphia, June 6 and 7, 1919. The board is composed of representatives of the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association, and the Academy of Ophthalmology and Oto-Laryngology. Details with reference to the examination may be obtained from the secretary, Dr. Wm. S. Wilder, 122 South Michigan avenue, Chicago, Ill.

**GIFTS TO HOSPITALS AND SCHOOL.**—The Marquette Medical School Dispensary recently received \$133,000 as an endowment by the family of Patrick Cudahy; Johns Hopkins Hospital, Baltimore, \$400,000 for the erection of a building to serve as a women's clinic by an anonymous donor; and Johns Hopkins University, Baltimore, the "Tudor and Stewart Club," in memory of Revere Osler, endowed by Sir William and Lady Osler.

**SERVICE FOR TRAINED SANITARIANS.**—Well-organized health departments is the subject of consideration in many communities because of the threatened recurrence of influenza next year. Formerly great difficulty was experienced in obtaining men well trained in medicine, epidemiology, vital statistics, water supply, sewage disposal, and in every branch of city positions. Men are now returning to civil communities who have served in the Medical Corps of the Army and who are excellently equipped for positions as health officers, laboratorians, vital statisticians, sanitary engineers, industrial hygienists, school medical inspectors, etc. A health employ-

ment bureau at Boston has been established by the American Public Health Association to supply men for such positions. When they return from service they will register with the bureau, and when a request for help comes from the bureau they will be notified and sent to the prospective employers. This service is rendered without pay either to the employers or applicants.

**DISCHARGE OF TUBERCULOUS SOLDIERS.**—In a hearing before the Senate Committee on Public Buildings, Dr. W. G. Stimson, of the United States Public Health Service, declared that 24,000 soldiers had been discharged from the army as tuberculous since the beginning of the war. He said that the history of the patients indicated that they would be in the hospital one-third of the time. Dr. Stimson submitted plans for adding 2,000 beds to the existing hospitals.

**QUADRUPLETS BORN.**—An Italian woman living in Philadelphia gave birth to four seven-pound children, two boys and two girls, on February 16, adding them to her nine living children. She had previously given birth to fourteen children, five of whom died. The two girls are blondes, while the boys are dark. The mother is forty-two years of age and she was married at fifteen.

**AMERICAN MEDICAL EDITORS' ASSOCIATION.**—The forthcoming meeting of this association, which will be held in Atlantic City in June, 1919, at the Marlborough-Blenheim Hotel, will be the fiftieth anniversary of this society. Every effort is being made to make its golden jubilee a memorable occasion. Arrangements for the Victory Golden Jubilee Banquet, to be held on the evening of June 10, are now being made, and the secretary-treasurer, Dr. J. MacDonald, Jr., 92 William street, New York City, would be glad to receive in advance any notification of a desire to attend.

**PUBLIC HEALTH EDUCATION CAMPAIGN.**—One of the first of the peace-time activities of the Red Cross is a nation-wide campaign for public health education. As chautauqua itineraries offer unusual opportunities to reach communities most in need of health work, the Red Cross Department of Nursing is assigning between thirty and forty of its ablest nurses, who have returned from overseas, to lecture on the principal chautauqua circuits in the country. The lectures begin June 1, and in each instance will be followed by a squad of other nurses and Red Cross workers who will conduct a health exhibit and give practical demonstrations.

THE UNITED STATES CIVIL SERVICE COMMISSION announces an open competitive examination for assistant in pharmacology, for both men and women, to fill a vacancy in the Hygienic Laboratory, Public Health Service, Washington, D. C., at entrance salaries ranging from \$1,500 to \$2,000 a year. This examination is open to all citizens of the United States and will be held in most important cities throughout the country on April 29, 1919. For further information, applicants should apply for Form 1312, stating the title of the examination desired.

PERSONALS.—Among the Louisiana men who have returned, since our last list, from service in this country or abroad, are: Drs. I. I. Lemann, Urban Maes, J. B. Guthrie, J. B. Elliott, Russell E. Stone, J. W. A. Smith, of New Orleans; Dr. C. McVea, Baton Rouge; Dr. H. P. Doles, Blanchard; Dr. A. B. Wheelis, Marion, Dr. W. W. Smith, Shreveport; Dr. J. F. Polk, Slidell; Dr. F. R. Deans, White Castle; Dr. R. D. Martinez, Bunkie; Dr. W. N. Hankins, Derry; Dr. O. P. Daley, Lafayette; Dr. R. C. Webb, Rayne; Dr. R. L. May, Delhi; Dr. P. T. Thibodaux, Donaldsonville, and Dr. J. W. Lea, Jackson.

Dr. W. I. Wimberly has recently opened up offices at 3602 Prytania street, New Orleans.

Dr. James Joseph Ryan, 1217 Maison Blanche Building, New Orleans, announces that his practice is limited to diseases of the ear, nose and throat.

Dr. Henry Leidenheimer, who was serving as house surgeon at the Charity Hospital during the absence of Dr. Maurice Gelpi, called for service in the army, was presented with a silver loving cup by the interns and physicians of the hospital in appreciation of his services. Dr. Gelpi will resume his duties immediately.

Dr. A. Parker Hitchens, one of the noted bacteriologists in the United States, has accepted an appointment as associate director of the biological division of the Lilly laboratories.

Dr. William H. Harris, 1201 Maison Blanche Building, announces the association with him of Dr. Andrew V. Friedrichs in pathology and bacteriology.

MARRIED.—On March 19, 1919, Dr. William Barclay Terhune, of New Orleans, to Miss Jane Denham, of Rayville, La.

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## PUBLICATIONS RECEIVED

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**P. BLAKISTON'S SON & CO.,** Philadelphia, 1919.

*Beverages and Their Adulteration*, by Harvey W. Wiley, M. D.

*An International System of Ophthalmic Practice.* Edited by Walter

L. Pyle, A. M., M. D. *Medical Ophthalmology*, by Arnold Knapp, M. D.

*The Diagnostic Treatment of Tropical Diseases*, by E. R. Stitt, A. B.,  
Ph. G., M. D., LL. D. Third edition, revised.

**W. B. SAUNDERS COMPANY,** Philadelphia and London, 1919.

*Complete Index to Volumes I, II and III of Warbasse's Surgical Treatment.*

*The Medical Clinics of North America.* November, 1918. Vol. 2,  
No. 3. Philadelphia Number.

*Surgical Treatment*, by James Peter Warbasse, M. D. In three volumes.  
Vol. III.

**C. V. MOSBY COMPANY,** St. Louis, 1918.

*Röntgenotherapy*, by Albert Franklin Tyler, B. Sc., M. D.

**GOVERNMENT PRINTING OFFICE,** Washington, D. C., 1919.

*Public Health Reports.* Vol. 34, Nos. 5, 6, 7, 8 and 9.

### MISCELLANEOUS:

*Report of the Philippines Health Service.* From January 1 to December 31, 1917. (Manila Bureau of Printing, 1918.)

*Annual Report of the Library of the College of Physicians of Philadelphia.* For the year 1918.

### REPRINTS.

*Early Diagnosis of Cerebrospinal Meningitis by the Examination of Stained Blood Films.* Report of Cases, by Dr. W. W. King.

*Epidemic Influenza, 1918*, by J. C. Bhatt and K. M. Hiranandani.

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## LAST NOTICE.

Remember the date of the meeting of  
the Louisiana State Medical Society, April  
8, 9, and 10.

Prepare to come.

**MORTUARY REPORT OF NEW ORLEANS.**

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for February, 1919.

CAUSE.	White.	Colored.	Total.
Typhoid Fever .....	2	—	2
Intermittent Fever (Malarial Cachexia) .....	—	—	—
Smallpox .....	—	—	—
Measles .....	—	—	—
Scarlet Fever .....	—	—	—
Whooping Cough .....	1	—	1
Diphtheria and Croup .....	1	—	1
Influenza .....	64	39	103
Cholera Nostras .....	—	—	—
Pyemia and Septicemia .....	—	—	—
Tuberculosis .....	55	40	95
Cancer .....	30	9	39
Rheumatism and Gout .....	1	3	4
Diabetes .....	4	1	5
Alcoholism .....	—	—	—
Encephalitis and Meningitis .....	—	—	—
Locomotor Ataxia .....	—	—	—
Congestion, Hemorrhage and Softening of Brain .....	25	15	40
Paralysis .....	1	1	2
Convulsions of Infancy .....	1	—	1
Other Diseases of Infancy .....	12	6	18
Tetanus .....	1	2	3
Other Nervous Diseases .....	8	2	10
Heart Diseases .....	76	41	117
Bronchitis .....	5	3	8
Pneumonia and Broncho-Pneumonia .....	56	35	91
Other Respiratory Diseases .....	4	—	4
Ulcer of Stomach .....	—	—	—
Other Diseases of the Stomach .....	1	1	2
Diarrhea, Dysentery and Enteritis .....	4	3	7
Hernia, Intestinal Obstruction .....	5	2	7
Cirrhosis of Liver .....	3	3	6
Other Diseases of the Liver .....	4	—	4
Simple Peritonitis .....	—	—	—
Appendicitis .....	4	4	8
Bright's Disease .....	20	14	34
Other Genito-Urinary Diseases .....	15	9	24
Puerperal Diseases .....	2	1	3
Senile Debility .....	6	1	7
Suicide .....	1	1	2
Injuries .....	15	16	31
All Other Causes .....	23	15	58
<b>TOTAL</b> .....	<b>450</b>	<b>267</b>	<b>679</b>

Still-born Children—White, 18; colored, 19; total, 37.

Population of City (estimated)—White, 283,000; colored, 106,000; total, 388,000.

Death Rate per 1,000 per Annum for Month—White, 19.08; colored, 30.23; total, 22.12. Non-residents excluded, 19.09.

**METEOROLOGIC SUMMARY (U. S. Weather Bureau).**

Mean atmospheric pressure. . . . . 30.01  
Mean temperature. . . . . 37  
Total precipitation. . . . . 6.52 inches  
Prevailing direction of wind, southwest.



# NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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Vol. LXXI

MAY, 1919

No. 11

## EDITORIAL

### OUR DIAMOND ANNIVERSARY

The JOURNAL celebrates with this issue its seventy-fifth anniversary, as the first number was issued in May, 1844.

The actual editors have been at the helm for twenty-three years, and it is a great satisfaction to them to be able to mention that, during the whole period, the JOURNAL has appeared promptly each and every month, not excepting times of epidemic or war, floods or storms. The only break in the publication occurred during the Civil War, when editors, contributors and readers were mostly in the army.

In a modest way we have striven to do our bit, and believe we

can state, without fear, that we have tried to live up to the ideals of the founders of our publication, and can quote, without compunction, the following from the first page of Volume 1, No. 1:

“Our Journal shall be liberal, independent and impartial. \* \* \* Whatever credit or folly may be attached to the undertaking will belong to the editors alone. It is subservient to no personal, no party interests. We pursue a higher and a nobler aim—The cultivation of medical science and the improvement of its followers.

“We look to the accomplishment of these objects for our reward, and if we fail we shall at least have the satisfaction of having attempted something useful.

“To the medical corps of New Orleans, of every nation and tongue, our pages are freely offered and their contributions are respectfully invited. Of course, they can only be published in the English language, but there is no difficulty in procuring good translations.”

We thank sincerely all those who have given us their aid and support in any way, and shall endeavor to continue deserving their endorsement in the future.

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### SOME PSYCHOLOGY OF SYPHILIS.

Each year for many seasons Fournier, the great syphilologist, spent several lectures teaching the importance of the early effects upon the nervous system in syphilis, and he particularly stressed the loss of *morale* in such patients.

The syphilophobia of those with genital lesions bearing suspicious evidences, but incapable of proof of syphilis in the earlier period before the laboratory tests were available, often was misleading. One elemental fact, however, always stood out: the syphilophobic was always frank; the syphilitic for some time the contrary—as Fournier put it, lying is a symptom of syphilis.

The reference to these observations on some psychologic changes in early syphilis has been occasioned upon the reading of the circular of instructions just issued by the City Board of Health, and which “the physician must hand to the patient.”

We are thoroughly conversant with the mental attitude of the patient with syphilis, and we know that the majority of them will be apt to read of the disease when they can, and thereby increase the ordinary morbid influences which must be overcome, but we can imagine no greater contribution to the evils of his imagination than the array of symptoms outlined in the circular and which the greater number of victims will at once anticipate as to be expected in the course of his own case.

We believe that the intelligence of a patient should be appealed to and that his personal hygiene is a matter of the greatest importance, but how is it practicable when the patient is told to read carefully and often an array which might give a healthy man or woman a nightmare and a sick one a near-delirium?

It is a wise precaution to advise sterilized drinking-cups and eating utensils, but this necessitates either accommodation for such at all eating places, hotels and on public carriers, or the syphilitic must be compelled to drink and eat only at his own domicile, where he may do as he pleases.

It is a wise step to afford the physician the facilities for easy treatment for his patient, but no physician who thinks twice will put such a circular in the hands of a patient with syphilis looking for relief of the disease.

Such circulars might be posted in all public places for the purpose of scaring those who might pass in the way of disease, and for such a purpose the circular might serve an admirable purpose, but it would appear to us that by attempting to force the circular upon unwilling doctors and unwilling patients the end result may be that the Board of Health is on the way to getting rid of a bad law by enforcing it.

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### MEETING OF THE STATE SOCIETY.

The Louisiana State Medical Society held its annual meeting on April 9, 10 and 11 in Shreveport. The total attendance was 212, with thirty-five from New Orleans. While the average number of papers were on the program, there were probably fewer absentees than usual among the readers. All in all, the scientific aspect of the meeting, if not brilliant, was quite satisfactory.

As usual, the Shreveport members were cordial, attentive, and "on the job." The creature comforts of the visitors were looked after with interest, the entertainments well arranged and liberal.

All told, the meeting was a successful one, and we should be thankful to the respective officers and to the Shreveport contingent for the favorable outcome.

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## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### BLOOD CHEMICAL METHODS IN DIAGNOSIS AND PROGNOSIS.\*

By R. B. H. GRADWOHL, Lieutenant Commander, M. C., U. S. N. R. F.,  
St. Louis, Mo.

A discussion of the problems connected with the newer methods of blood analysis for the detection of derangements in kidney function would be incomplete without paying some attention to the subject of urine analysis—methods of examination which have been in vogue for quite some time and the importance of which we do not in any way wish to decry or minimize.

A brief historical review of these methods in medicine is, therefore, not amiss. Gross changes in the appearance of the urine were noted by the earliest of medical writers, namely, Hippocrates. He taught that there were prognostic aspects to the examination of physiological characteristics of urine.

He showed that there was probably some pathological change in kidneys when there was a change in the physical properties of urine: its quantity, color and clearness, its cloudy or turbid appearance and the differences in the gross appearancea of its sediments.

He tried to show that there was a definite influence of food and drink upon the urine. Others after Hippocrates alluded to the same characteristics, but added nothing new. It was Galen who systematized these Hippocratic teachings, but century after century passed without a single addition to this information. Then came Avicenna, the Arabian physician, 980-1037, who showed that external influences, such as fasting vigils, physical and mental exertions, influenced the conditions of the urine. He showed that internal administration of certain drugs could color the urine. During the Middle Ages, Johannes, called Actuarius, living at the court of Byzantium, in the thirteenth century, added his own observations to those of the Hippocratic-Galen period, describing the minute physiological characteristics of urine.

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\*Read before the Orleans Parish Medical Society, February 24, 1919.

No chemical data, of course, were at hand, and therefore no real progress could be made until the development of chemistry occurred; this came with the work of Lorenzo Bellini, of Florence. He evaporated urine and noted that, when he added water, the solids dissolved, returning step by step through various intensities of taste and color until the original condition almost ensued. He therefore concluded that the different colors and tastes of urine were due to variations in concentrations of the solid ingredients. Later Dobson and Willis discovered sugar in urine.

Brandt found phosphorus which, Markgraff proved, came from the phosphates. Rouelle discovered urea in 1773, and found calcium carbonate, as well as hippuric acid, in the urine of herbivora. In 1770, Cortugno found albumin in urine; in 1798, Cruikshank noted the connection of this albuminuria to dropsy, but it remained for Richard Bright, physician and pathologist to Guy's Hospital, to show the true relations of dropsy and albumin to disease of the kidneys.

"Bright's Report of Medical Cases," published in 1827, presents a striking contrast to the vague humoralism of his predecessors, the work showing the solidism of his pathology. He ascribed albuminuria and dropsy to the altered anatomical condition of the kidneys and he figured the changes in the kidneys much as they are described and recognized to-day.

About this time, the chemical analysis of gravel and calculi were undertaken, the principal writers on this subject at that time being Wollaston, Scheele, Wetzlar and Prout. The work of Rayer and Becquerel was epoch-making, in that it covered not only the chemistry, but also the microscopy, of urine sediment. Casts were first described by Vogla in 1837.

Nasse and Simon amplified this description. It was Henle, however, who, in 1844, insisted most particularly upon their significance in renal disease. Later chemical and microscopical researches have given us the present technic of urine examinations, which are familiar to all of us.

We must not forget to allude to the historical aspect of the search for sugar in urine and blood, as this subject intimately concerns us in the present paper. While diabetes was known to the ancients, Celsus, Aretæus, Galen and Paracelsus, they gave no intimation that they suspected it was characterized by the presence of sugar in the urine.

Ayur Vedda, in 500 A. D., claimed that this was known to Hindu physicians, but no European knew it until Dobson demonstrated it in the eighteenth century. The first demonstration of sugar in the blood was made by Ambrosian in 1835. The remarkable work of Claude Bernard, in 1848, opened up a path of investigation on the elaboration of carbo-hydrate metabolism that fully explains glycemia as we know it to-day.

The question of studying the intimate metabolism of the body by means of chemical tests of blood was before the minds of many investigators abroad for some years. It remained, however, for American research workers to develop methods which, because of the fact that but small quantities of blood were required and because these tests could be rapidly carried out, have resulted in the development of some surprisingly useful facts of great value to clinicians.

The names of Folin, Denis, Benedict, Myers and Fine represent the group of men who, since 1912, have given us the principal points in the technic now in use. Our interest in this new-born department of chemical hematology is based upon a close study of these methods from a technical and from an interpretative clinical standpoint. A consideration of facts of normal metabolism is necessary in order to thoroughly understand exactly what we are seeking here to depict.

These blood chemical methods entail a search in blood mainly for the products of non-protein nitrogenous metabolism, to-wit, urea nitrogen uric acid, creatinin and sugar. We will not take up other products, the interpretation of which is still under investigation. As a result of these tests we have established certain quantitative normals; these are, in terms of one hundred cubic centimeters of blood: uric acid  $\frac{1}{3}$  mg., urea nitrogen  $\frac{1}{2}_{15}$  mg., creatinin  $\frac{1}{2}_{.5}$  mg., and sugar 0.08-0.12 per cent. It has been shown that substance which is easiest of all for the kidneys to throw out is creatinin, then comes urea nitrogen, and finally uric acid.

Uric acid is the most difficult, creatinin the easiest to eliminate. Therefore the first change in the concentration of these ingredients in the blood when kidney function is disturbed is a retention of uric acid.

As the change in kidney function is aggravated, we next have a retention of urea nitrogen; we finally see creatinin stored up. This occurs manifestly only in extreme states of kidney derangement.

This storing-up of these ingredients in this manner is called by Myers and Chase the "stair-case" effect, and indeed this expression most graphically describes it. We see in practical work, in the very beginning of chronic interstitial nephritis, an increase in acid alone.

There may or may not be alterations in the urine; perhaps none, perhaps only a trace of albumin and an occasional cast. In next order, the urea nitrogen is increased, and here there may be little or no change in the urine.

Creatinin finally is blocked, and still we may have no increase in the pathologically formed substances in urine. It is in the interstitial type of nephritis that we see the most interesting blood pictures. We may have in the so-called parenchymatous type an increase of all these ingredients only in severe states, not step by step, as we see it in the interstitial variety. It is in that state known as uremic nephritis that we see the highest concentrations of all these ingredients.

At this point I wish to call attention to the concentration of creatinin as first noted by Folin and later confirmed by Myers and Lough, with respect to prognosis. Knowing that creatinin is the easiest ingredient of these three to be eliminated by the kidneys, its retention in undue quantity is suggestive of most critical derangement of kidney function.

The normal figure in blood is from 1 to 2.5 mg. per 100 cc. of blood. When creatinin is stored up in the quantity of 5 mg. or over, we can safely make a fatal prognosis, regardless of the apparent good condition of the patient. In an extended experience with severe nephritis we have never seen an exception to this finding, nor has the writer seen any statement in the literature contradicting this.

In a study of thermic fever cases with Dr. Schisler last summer, this prognostic factor came out in a striking manner in some of these cases. In recent experiences at the City Hospital, this prognostic factor has asserted itself correctly time and again.

Another line of investigation which blood chemistry has opened up is the correct method of differentiating gouty from other arthritic conditions by means of an estimation of uric acid. Many years ago Garrod stated that uric acid is markedly increased in the blood in gout, but not in rheumatism; his views, not being in accord with existing authority, were disputed at the time.

Strange as it may seem, this discerning clinical observer

reasoned correctly, even though he had no clinical methods to mathematically prove his point. In gouty conditions we have figures of uric acid over 3.5 gm., at times as high as 25 gm. In rheumatism we have no accumulation of uric acid in blood. Blood chemistry plays an important part in the differential diagnosis between cases that are purely renal in origin and secondarily only cardio-vascular, and those that are purely cardio-vascular and only secondarily renal.

We believe that the experiences which we have had, in association with Drs. Schisler and Powell at the City Hospital, have very often clearly made this distinction where other methods have failed to do so. We refer, of course, to the extreme cases of both kinds, cases that are in a condition commonly called uremic, with albumin and casts in the urin in both cases, with increased blood pressure, and often with severe cardiac symptoms. In these cases we find that there is a marked accumulation of all these non-protein nitrogenous ingredients in the first type of case, namely, the primary renal; in the second group of cases there is no such accumulation, or very little.

In the purely nephritic type of advanced variety we have found all ingredients increased, with creatinin above the fatal point. In a recent experience we saw two cases, both apparently in an uremic status. One had urea nitrogen 99, uric acid 9.8, creatinin 6.76, sugar 0.144 per cent—manifestly a case of uremic nephritis; the other showed urea nitrogen 25, uric acid 5.7, creatinin 1.62, 0.114 per cent sugar—manifestly not a uremic.

Both cases, clinically, were alike. The first case died the following day; the second case died some time later of heart block. This differentiation should be helpful in treatment. The importance of blood chemistry is manifest in a study of diabetes mellitus. We know that the normal amount of sugar in blood is 0.08 to 0.12 per cent. Any figure above this is called hyperglycemic. It is stated by Hamman and Hirschman and others that sugar may rise in the blood to the point of 0.18 per cent before it appears in the urine; it may appear in the urine, of course, below this point. The threshold point is ordinarily 0.18 per cent, yet we have several instances where there was a concentration of 0.22 per cent before glycosuria occurred.

The importance of a knowledge of the amount of blood sugar present in any given case is seen, first, for purposes of diagnosis;

secondly, for guidance during the treatment of diabetes mellitus. It is also important in clearing up the differential between renal diabetes and diabetes mellitus. We know that in renal diabetes there is no increase in blood sugar; in diabetes mellitus there is always hyperglycemia. We mention this differentiation, fully aware, however, that some authorities maintain that renal diabetes is simply a forerunner of diabetes mellitus and is not in itself a clinical entity.

Allen, Mosenthal and others believe that there are well-authenticated cases of renal diabetes on record that are not prior cases of diabetes mellitus. Another line of investigation opened up by blood chemistry is the estimation of acidosis. For an estimation of this kind, we have the Van Slyke method of determination of the carbon dioxid power of absorption of blood plasma. We also have Marriott's method for the determination of acidosis by means of the hydrogenion concentration of the blood, as well as the method of Marriott for the determination of the alkali reserve of the blood plasma.

Another method is the determination of the carbon dioxid in alveolar air according to Fredericia's technic. These are methods that are commonly used in the detection of acidosis in connection with diabetic states. Very recently Marriott, Hæssler and Howland have called attention to a method of determination of acidosis that occurs with the nephritic state. They claim that the acidosis met with in nephritis is unlike that of diabetes, namely, an accumulation of acetone bodies; rather is it due to a failure to regulate the formation of acid substances by the kidney, a failure to eliminate acid phosphates.

Their method looks to the estimation of the inorganic phosphates in the blood. The normal figure expressed in terms of phosphorus varied from 1 to 3.5 mg. per 100 cc. of blood.

In nephritic acidosis they found it increased invariably to many times the normal, as much as 23 mg.

Something might be said as to the technic of blood chemical analysis. The sample is procured preferably in the morning, before the patient has eaten his breakfast. Blood is taken in much the same manner it is taken for a serological test, namely, by puncture of a palpable or visible vein on the forearm, made to stand out by means of a tourniquet and by having the patient clinch his fist. The blood is received into a bottle prepared by means of adding and

drying in the bottle overnight ten drops of potassium oxalate 20 per cent solution.

The bottle is agitated, to assist in defibrination, and examined as soon as possible. The examination begins with an estimation of sugar; we use the method of Lewis and Benedict. We next examine for creatinin, according to Folin and Denis' method. Next, uric acid, according to Folin and Denis, and finally urea nitrogen according to Marshall's urease method.

We may, if desired, look for the amount of non-protein nitrogen, cholesterol and total solids. This makes a complete blood chemical analysis. The acidosis tests are only carried out when indicated by fear of that complication arising. The methods are mainly colorimetric.

Before closing, we wish to say a word or two respecting the value of the phthalein test of Geraghty and Rowntree as compared to blood chemical tests. Like others, we have been very much dissatisfied with this test, first, because its principle does not necessarily reside in an estimation of true kidney function; secondly, because it has repeatedly failed in practice to give us reliable information.

We have found it normal where the kidneys were deficient, we have found it showing a decreased elimination where the kidneys were proven by blood chemical methods to be functionally normal, and where later operative procedures and perfect convalescence bore out these facts. In a study which was presented by Dr. Scherck and myself before the American Urological Association these facts were clearly proven in a series of about twenty-five cases, mainly obstructive conditions in the urogenital tract.

In this connection we cannot conclude without calling the attention of the surgical profession to the necessity of utilizing blood chemical methods in surveying operative risk. We believe, from practical experiences, that the methods of urine analysis, no matter how complete, fail to fully apprise the surgeon of the functional capacity of his patient to stand the anesthetic and the usual operative disturbances so familiar to all. We believe that the wide experiences of clinicians with these methods have already proven their usefulness to the internist; the surgeon, too, will find them of extreme usefulness in indicated cases.

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## DISCUSSION OF DR. R. B. H. GRADWOHL'S PAPER.

**Mr. John G. Bowman**, Director, American College of Surgeons: Mr. Chairman and Gentlemen—There is nothing which I can say to contribute directly to this discussion, but I am much pleased to be with you. The American College of Surgeons is at work on a program called hospital standardization. Very briefly, this is what hospital standardization means. Until recent years, at least most of the hospitals in this country were clean, kindly-disposed boarding-houses. They served primarily as a convenience to doctor in which to care for their patients. But the day of the hospital boarding-house is about gone. We are in the midst of a swift evolution in which hospitals are assuming a clear-cut policy toward their communities. They are no longer content to be boarding-houses. They are institutions with a clear-cut policy, which guarantees to their

communities that every man, woman and child cared for within their walls will receive the best care which modern medicine can give. The public is keenly awake on this subject, and the fact is that no hospital can successfully ask the good will, confidence or support of its community unless it in turn, as an institution, stands for the right sort of service. This is not an occasion in which to discuss details of our program on hospital standardization. Let me simply say that hospital superintendents and the medical profession have taken an admirable leadership in order to make their ideals come true.

**Dr. Hornsby:** I am not going to intrude myself on your very interesting meeting. I was reminded of an incident while Dr. Gradwohl and some other gentlemen were talking. I had an old Irish friend some years ago, and kind Providence had in the course of years seen fit to send him fourteen or fifteen children. I said: "Mr. Barrett, don't you find it pretty hard to take care of them as they come along?" He answered: "John, God never sent me one but what He sent me along something to take care of him with." I wonder if this isn't true also of the laboratory? God gave me a hospital and He did not give me any laboratory, but in two years from that time I had a \$250,000 laboratory and was stealing \$40,000 from the rest of the hospital to work it, and I was justified in doing it. The medical men were more than enthusiastic about what that laboratory was doing for them. The hospital was having a hard time getting along, but after I began to deliver the goods to the medical profession the money seemed to come easier, and every man in the hospital was plugging for that hospital every minute of the time; and while my board was anxious about whether we were going to fill our new hospital, the medical men connected with the institution, spurred on by the kind of work our laboratory was doing, began to fill the hospital. I never had any trouble. Those who have been familiar with my hospital work in Chicago will back me up that I never had any trouble in running it. I got the best man I could find for my laboratory, and paid him the money that was needed to get him, and it happened to be more than \$2,000 a year more than I myself was getting in salary. I made him director of the laboratory and then I got a pathologist and a physiologist and a physiological chemist. I spent \$40,000 a year. I don't know any more important business than the laboratory of the hospital of to-day.

**Dr. H. W. E. Walther:** I have greatly appreciated hearing Dr. Gradwohl's paper. The point he brings out emphasizing the importance of blood chemistry are so clear and convincing that little is left to say. However, I must differ with him as to his opinion regarding the value of phenolsulphonaphthalein. No one diagnostic or prognostic agent yet discovered is absolutely perfect, and I know that occasionally the phthalein readings—being tests only of the renal output at the time the test is made—are at variance with the clinical pictures, but this is the exception, not the rule. Phthalein readings have helped the urologist a great deal in coming to a decision on many types of cases, and we would not like to have to do without it. It should be used in conjunction with the blood chemical methods to get the best ideas in diagnosis and prognosis. I have done a great deal of blood-urea work in conjunction with the phthalein readings, and it has been interesting to follow the results so obtained.

It is to be regretted that no hospital laboratory in New Orleans is fitted to do blood chemistry. All the blood chemistry so far done here

has been done in the private laboratory of the urologist. The time has come when we should get together on this work and have our hospitals fit themselves for this kind of laboratory work. Dr. Gradwohl's paper, I feel sure, will stimulate the work on blood chemistry here, and we should all feel thankful to him for having presented his work to us at this time.

**Dr. A. Nelken:** I have been anxious to have Dr. Gradwohl present the subject of blood chemical analysis before this Society, because I have been desirous of seeing the local profession awakened to the importance of this matter. The functional capacity of the kidneys is of extreme importance, not only to the urologist, but to every other medical man, regardless of which branch of medicine he is especially interested in. In the last analysis, kidney failure is the most common cause of death, no matter what the specific condition from which the patient is suffering may be.

The importance of newer methods of estimating kidney function became apparent when we learned the unreliability, both for diagnostic and prognostic purposes, of the routine methods of urinary analysis. You may recall Dr. Cabot's statement, that the most important things about the urine were the color, the reaction, and the specific gravity. As our education along this line increased, we saw that we had been giving undue importance to the presence or absence of albumen and casts in the urine.

The introduction of the dye tests was a considerable step in advance. Methylene blue and indigo carmine were used at first, with the idea of finding the time of beginning of secretion. When Rowntree and Geraghty introduced the phenolsulphone test it marked further progress, for this test is applied so as to give us information not only as to the time of beginning of secretion, but also as to the quantity eliminated during a given period. Chiefly, its simplicity of application has served to make it the most popular of all the methods at present at our disposal for estimating renal function. But large experience with this test has shown that it must not be taken as an absolute index of kidney capacity, applicable to every case.

And the newer methods of blood chemical analysis offer a substantial advance over anything else that has been offered along this line. I have had the privilege of seeing Dr. Gradwohl work in his laboratory, and I am satisfied that these tests, carried out according to his methods, combine both simplicity of application and reliability as to findings. I hope to see the men in New Orleans who do laboratory work prepare themselves to carry out this work, for I believe that the time is not so far distant when we shall no more think of putting a patient on the operating table without a report on his blood findings than we would now of operating without a routine urinary examination.

**Dr. Harris:** As I am the only laboratory man present connected with a hospital, I feel I should say a few words. I don't think that the fact that these blood chemical tests are not carried out is to be blamed upon those of us who are in charge of the hospital laboratories, but rather upon the fact that the hospitals are not equipped with the facilities for these procedures. When you go into the laboratories as they are, you will see that they have hardly the facilities necessary for the proper pathological and bacteriological work. Another thing is this: We must realize that this particular type of work is more in the province of the physiological chemist. I have long realized this importance and have

discussed with Drs. Chillingworth, Metz and others about the possibility of the organization of such work. I would like to ask Dr. Gradwohl whether or not he considers that such work is not really properly carried out by a physiological chemist. I have been somewhat reluctant about entering into a branch that is separate and distinct from my own domain. We see daily so many examples of the serious results of, for example, faulty Wassermann reactions, carried out by those insufficiently equipped, that one should hesitate to attempt a branch as a side line which is in reality a specialty.

Under the circumstances, I think it unjust that visiting physicians should say that the pathologists in hospitals are remiss. They should encourage the authorities to budget the necessary funds so as to incorporate such a branch into a properly trained assistant. The laboratory must be productive of funds in order to get it.

I would like to ask Dr. Gradwohl as regards the question of the test in children—just how much blood we would have to get along with for a child, as 10 ccs. would render it rather impractical. I am very glad to have heard the paper of Dr. Gradwohl and I hope it might stimulate our physicians to demand of the hospitals the proper essentials for laboratory procedure.

**Dr. Johns:** I would like to endorse the standpoint of Dr. Harris relative to the present inability of securing proper instruments, and to ask Dr. Gradwohl as to the reliability of several of the new American-made colorimeters and standard chemicals.

**Dr. Gradwohl** (closing the discussion): Referring to Dr Eustis' discussion, I think he is correct in wishing for more knowledge on the amid-acids. I think that field is being worked now, and I hope we will get some data at some future time. I believe Dr. Harris' point is very well taken—that the fault concerning the laboratory department is in the hospital management. For years they have contributed very little to the establishment and equipment and management of the laboratories. In most quarters, whatever improvement there has been in regard to hospital laboratories has come from laboratory men, and not from the hospital management. It seems the hospital management has never quite seen the point that investment in money in the laboratory work is just as important as maintaining the operating-room, even though it works at an apparent loss. If a hospital is being maintained for the purpose of curing the sick, then what is the use of talking of extravagance? Money should be no object. The laboratory department should be conducted regardless of expense. If this is to be run on the basis of how much work can be done and how much money can be made out of it, it is a very bad policy, and should find no response. Let the work of the laboratory speak for the excellence of the institution.

In many hospitals in St. Louis the same situation has existed there for years, and for a long time there were few laboratories worthy of the name; they never paid a laboratory director enough money to let him settle down in the hospital and remain there. They seemed to be content to appoint some one with a good reputation who was content to take the appointment because his reputation was thereby enhanced; he turned over the work to half-baked technicians and appeared at the laboratory for a short time and took the responsibility for work he never saw and the clinician accepted it because his director was a man of established reputation.

So far as specialism in the hospital laboratory work is concerned, I

do not believe the laboratory of the hospital—a good hospital—ought to have a hospital chemist. Chemistry is a very important part of the clinical work, and one laboratory man cannot be competent in every department and cannot do it all. I believe the tendency is to have a chemical man doing the chemical work of the laboratory. I don't believe in carrying that principle down to the smallest hospital. When the work gets big enough to demand special attention, it can then be done.

Dr. Johns has brought up a very important question regarding the equipment of the laboratory for this kind of work. We need for this work certain apparatus, all of which has been made in America here. There is an instrument described by Dr. Benedict, devised by him, which costs about \$15. I have one of these, but have worked very little with it, but I am willing to accept Dr. Benedict's word that it is as good as he says. The Hellige instrument I endorsed in my book, because it used such a small amount of the standard solution, and the standard solutions are so hard to obtain that I recommended it for that reason.

With the Hellige instruments, you keep most of standard solutions in wedges. The standard solution for the estimation of sugar can be made from a pure solution of glucose. It can also be made from a solution of picramic acid. The creatinin can be made by estimation of the amount of creatinin in a specimen of urine. Uric acid must be pure.

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## **"DELUSION AND DREAM."**

### **A Comment on the "Freud Theory."**

By S. T. RUCKER, M. D., Memphis, Tenn.

The Standard Dictionary defines a dream as "A succession of mental images, usually confused and incoherent, experienced while sleeping." The Encyclopedia Britannica says "A dream is a state of consciousness during sleep, or a hallucination peculiarly associated with the condition of sleep, but not necessarily confined to that state." Freud defines a dream as "A physiological delusion of the normal human being." A definition that appears to me more comprehensive is, a dream is a phantastic play of the unconscious mind, not logically descriptive, but represented by dramatic symbols and mental images.

Dreams we all have, visions we should have, and delusions we will have, unless our visions and desires find expression in reconstructive effort or in the dramatic phantasy of dreams. The conscious mind works continuously through the brain, its organ and medium of communication. It must find outlet for this activity either through normal or abnormal channels. To repress or confine it is like trying to control an excess of steam. It is well known that repressed or pent-up emotions (and emotions are thoughts) must find an avenue

of escape or, as sometimes expressed, "must get out of the system." The usual way is for men "to cuss it out," for women "to cry it out," boys "to fight it out," and girls to "laugh it out." The giggling, laughing girl is a good illustration of the normal escape of emotive activity.

Ancient people attached great importance to dreams and appear to have understood their language better than we of to-day. Many of their wise men possessed the ability to analyze and interpret dreams. To those who believe in Biblical history it is interesting to note that dreams played no small part as a medium of communication between Jehovah and His people. In the dream of Jacob there was a great stretch of the imagination when he saw a ladder that reached from earth to heaven and beheld angels ascending and descending on it. At the top stood the Lord, who delivered a prophetic message, saying "The descendants of Jacob would prosper, be blessed and spread over the face of the earth." Joseph incurred the enmity of his brothers by interpreting to them a dream he had, saying he would be chosen over them as a leader and ruler. Though he was exiled into Egypt, he became first in authority at the court of Pharaoh and interpreted his dreams. The Lord appeared to Solomon in a dream by night and said, "What shall I give thee?" Solomon asked, in return, for an understanding heart, that he might be able to judge the people and discern between good and evil. These represent some of the many dreams and interpretations of dreams referred to in Biblical history.

The philosophers of ancient Greece and Rome attempted explanations of dreams. Aristotle says, "Dreams are impressions left by objects seen with the eyes, and that a small sound, when exaggerated by slight stimuli, in a dream, becomes noise like thunder." Plato, too, connects dreaming with the normal operations of the mind, and explains them "as prophetic visions received by the lower appetitive soul through the liver." Hippocrates was disposed to admit that some dreams may be divine revelation, but held that others were premonitory of diseased states of the body.

The modern conception and interpretation of dreams is assuming a more scientific aspect, and the Freud theory that a dream is a fulfilment of a repressed or unconscious wish has opened up an interesting field for psychological research. It is well known that those things we wish and try to suppress during the day often come back in dreams at night. So, one initiated in dream-interpretation

may often find traces of things he has suppressed in the course of life. It was therefore natural that Freud, in his search for inadvertent outbreaks of the unconscious life, should turn his attention to dreams, especially so when he was continually meeting with the relation of dreams during his analytic methods of treating nervous disorders. Patients brought them to him in the same way they brought their real experiences. He soon found that dreams were established as determining structures, like any other thought-structure, only with the difference that they were built according to other principles than those which have to do with the waking life. By patient study he was able to learn how to decipher the strange symbol or sign language of the dream. In this way he gradually formulated his psycho-analytic method of determining the significance of dreams in unraveling the psychic tangles of the abnormal mind. What complicates dream-construction most of all is the use of symbols. The dream has an inclination to present everything in visual images. It does not approve of the narrative form, but is essentially dramatic. If one considers the dream as it immediately appears before the unconsciousness, it certainly seems quite meaningless. This has given rise to the teachings, according to which a dream is only a conglomeration of dissociated ideas, originating through some processes which temporarily irritate the mental apparatus. If the dream is subjected to analysis it takes on another signification.

When Freud turned his attention in this direction he soon discovered that symbolic speech by no means applies only to dreams. It is a common ingredient of the conscious mind and presents itself in folk-lore, in witticisms, in slang, etc. Primitive man made use of symbols as a means of expression; later our logical and descriptive speech was built upon this foundation. In settling upon one single point in the Freud doctrine which, in importance, exceeds all others, I should suggest his presentation of the connection between dreams and psychology and the process of neurosis construction. It has long been suspected that dreams have something to do with insanity; but until the researches of Freud this remained only a suspicion. His ingenuity was the first that succeeded in seizing upon and working out in detail this apparently inaccessible empirical material. He says dreams and delusion spring from the same source—the repressed. Before the repressed has become strong enough to push itself up into the waking life as a delusion it may

easily have won its first success under the more favorable circumstances of sleep in the form of a dream. During sleep, with the diminution of psychic activity, there enters a slackening of the strength of resistance, which the conscious psychic process offers to the repressed. This slackening is what makes dream-formation possible. Therefore the dream becomes for us the best means of approach to knowledge of the unconscious psyche. Only the dream usually passes rapidly with the revival of waking life and the ground won by the unconscious is again vacated.

In my study of abnormal psychology I have noticed a striking analogy between delusion and dream. The difference appears to be that a dream is acted out during the unconscious or sleep state and abandons the field when consciousness is restored; while delusion holds sway over the mind during the conscious or waking state and disappears during sleep. Now if, as Freud contends, a dream is the physiological delusion of the normal human being, may not a delusion be the pathological dream of the abnormal human being? My observations have been that persons who dream have no delusions, and those who are dominated by delusions have no dreams. Therefore dreams may perform an important function in maintaining mental balance by letting the "repressed" find a physiological exit during sleep, instead of pushing itself up into the waking life as a delusion.

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### **"MEDICAL EXPERIENCES OVERSEAS."\***

**By LIEUT. COL. JOHN B. ELLIOTT, Jr., New Orleans.**

Before saying anything about my medical experiences while in France I must say a word about the officers and nurses and men of Base Hospital 24, with whom I lived for eleven months as director of the unit and oftentimes commanding officer. I can never forget their loyalty to me personally nor their devotion to duty when the real hero of the war, the American "doughboy," was in need of help.

As four of the speakers are from Base Hospital 24, I think it best that I take up only what I saw and did after being detached from that organization.

On August 6, 1918, I was ordered by the chief surgeon, A. E. F., to report to St. Aignan to consult with the commanding officer of

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Camp Hospital 26 on the typhoid situation at that point. On arriving there, after consultation with Major Nagle, chief of the medical service, I found the following most interesting state of affairs: There were forty-six patients suffering with typhoid fever in the worst stage of the disease, all coming from one company, which had arrived from America about four weeks previously. They were being looked after in the most scientific manner and every precaution known to modern medicine was being used to prevent further spread. About three kilometers away 163 other members of the same company were being inspected daily and held in strict isolation; the feces of these cases had been examined weekly in order to segregate at once any carriers. The history of the company was that it had left Camp Cody, New Mexico, some time in June with 270 men, had traveled in a troop train to New York, had left two men sick at Camp Merritt, had dropped seven in a camp near Liverpool, twenty or thirty in Romsey, England, and about fifteen or more at Cherbourg, France, all probably suffering from typhoid fever. This company had been thoroughly vaccinated, some having received as many as nine "shots" of typhoid vaccin prior to June, 1918.

After most thorough study of the whole matter, Major Nagle was able to prove that the trouble had come from a carrier who was a member of the K. P. (kitchen police). Unfortunately, I was unable to get any further light on the question of the vaccin used in these cases.

A few days after returning to my headquarters from this trip I was ordered to report to Headquarters Medical Center, Vittel, for duty as consultant in general medicine to the hospital center of Vittel and Bazoilles. Luckily for me, Gen. W. S. Thayer, chief consultant in medicine, A. E. F., came to Limoges at just this time and I had the pleasure of a wonderful ride with him from Limoges all the way to Neufchateau, going via Moulin, Autun and Dijon, getting a view of France that can only be had from an auto. At Vittel I found Base Hospitals 23 and 36, and at Comtreville, four kilometers away, Hospitals 31 and 32. At Bazoilles, thirty kilometers away, were Base Hospitals 18, 42, 46, 60, 79, 81 and 116, while at Neufchateau was Base Hospital 66, and ten kilometers further on Convalescent Camp No. 2.

It was my duty to consult with the medical chiefs of the different hospitals as to the personnel of the respective staffs and to see such

cases as we thought advisable. You may imagine what a splendid opportunity this was for differential diagnosis and for learning medicine from the many excellent clinicians I met in my rounds.

My most interesting medical experience here was the epidemic of influenza, which came to us first about August 28, the patients coming from Girardmer to Base Hospital 36 at Vittel, whose medical chief was Lieut. Col. McGraw, of Detroit. From August 28 to November 1 we had 1,400 cases of what we soon learned to diagnose as coalescing broncho-pneumonia, with 453 deaths. The most striking clinical signs were early cyanosis, marked leucopenia and its great fatality in those who had been exhausted or who had become chilled from exposure in open trucks and automobiles.

While we could only demonstrate the influenza bacilli in a very, very small percentage of cases, yet we believed, and still do believe, that it was the primary factor in the epidemic and that the type of pneumonia which developed was dependent entirely on what type was most predominant in the throat of the patient at the time of being attacked by the influenza. Empyema was not so prominent as in the streptococcic type seen in the camps in America during the winter of 1917-1918, but we did see many cases of abscess of the lung, and, in two cases of empyema, Major Baetjer, at Bazoilles, was able to isolate the influenza bacilli in pure culture. The X-ray study of those recovering from influenza was most interesting, all showing a peri-bronchial thickening.

The effect of influenza on the heart was best seen at the convalescent camp at Liffon-le-Grand, where Capt. Bridgman was in charge of the medical work. Here were cases seemingly well in every way except for rapid heart after exertion, and not returned to normal rate until from one month to six weeks, though all physical signs of the disease were absent.

The meetings in Paris each month, under the auspices of the Red Cross, were most instructive, giving one an opportunity to hear the lesson learned from our Allies. I shall never forget the talks by Sir David Bruce and Sir Almoth Wright; but, above all my experiences, I must put first the stimulation and knowledge I received from association with such men as Thayer, Longcope, Webb, Kohn, Gamble, Abbott, Wallace and other leaders in American medicine.

I believe you can safely tell your clients that their sons were well taken care of in France. The devotion of doctors and nurses and men to the sick "doughboy" was simply beyond praise.

By MAJOR JOHN T. HALSEY, New Orleans.

My task to-night is to say a few words about what has been done by the officers, nurses and enlisted men of Base Hospital 24, most of whom are known to you.

After reaching France the officer group of the hospital was pretty badly broken up. One after another of us was ordered to other duties, until finally of the original medical quintet only I was left. Consequently there isn't much to tell you about the work done by the medical side, for the hardest part came after these gentlemen had left us. Of the surgeons, Drs. Maes, Chamberlain, Dicks, Wall and Jones were taken away from us before we really got down to our hardest work. In August, patients began to come in in large numbers, until finally there were over 1,800 sick and wounded soldiers to be cared for by about twelve doctors.

I want to say a word here as to what our enlisted men did at this time. In order that these patients could have beds, they voluntarily gave up their own beds and slept wherever they could find a place—in barns, offices, halls, kitchens and in pup tents on the ground.

As Limoges trains usually depart and arrive between 2 and 5 a. m., frequently some of our men would carry patients up four and five flights of stairs all night, not leaving the job until the last patient was put to bed, and then they would be at work all day as well.

As for the nurses, they stuck to their task equally well. There were strict orders that all nurses were to report sick if they felt out of sorts, but they never did. They simply waited until they were so sick they could do no more.

Dr. Lanford was taken away from us, leaving Dr. King Rand, of Alexandria, to care for the laboratory by himself. It was important work and there was lots of it, so for months Dr. Rand worked nearly every night until 12 o'clock.

A large part of the surgical work that had to be done at this hospital was the after-care of patients already operated on elsewhere. Much of it consisted simply in dressing cases over and over again. It was not what any surgeon would call interesting surgery, but those surgeons never faltered. Up to lunch-time and after lunch until dinner-time, they were at it, and at times it was after midnight before they finished. It was a beautiful and at the same

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time the most skillful example of faithful performance of duty that I have ever seen. I saw work done in several other base hospitals, but nowhere else did I see work as well done as in Base Hospital 24. You can be proud of what those fellow-townsmen of yours did. I personally feel so grateful to them, and have such respect for them, that I intend to name them each. John Smyth, Aleck Ficklen, Paul Lacroix, Muir Bradburn, Warren Scott and Philips Carter went through the worst of it, while Urban Maes and W. O. D. Jones did all there was to do until they left the organization.

Dr. Fenner deserves a paragraph to himself. Under the conditions which prevailed at Limoges there was relatively little for him to do in his own special line, so he simply turned in and did whatever there was to be done—orthopedic or general surgery—and when the medical side was swamped by a flood of medical cases he jumped in and saved the day by taking over medical wards. I feel specially grateful to him for the cheerful and skillful assistance which he rendered me during some of the most strenuous weeks of my life.

The following gives some idea of how we were rushed at times last fall. About the first of October we were told to get ready for a greatly increased number of patients. At that time we had about 700 beds in the hospital. By using every nook and corner we could find, in ten days we had enough beds to be able to take care of 1,500 patients, besides 350 more in an annex the other side of town. We didn't have any more trouble about patients spitting on the floor, for they couldn't hit it. In the first fourteen days of October we took in and cared for 1,500 new patients sent back from the front.

My witness would not be complete did I not speak of the wonderful spirit shown by the patients. Both sick and wounded showed themselves as good soldiers as they had been at the front. Than this, nothing more can be said in the way of praise.

**By CAPT. JOHN W. MORRIS, Somerville, Tenn.\***

One of the first things you would ask is, "What happens to a prisoner of war?" In my case, I was sent to German battalion headquarters. They ask you all sorts of questions, and we had been taught in advance, in event of capture, to answer all questions promptly and incorrectly. The intelligence officer did not know I

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was an American. He asked if there were many French among us, and I told him incorrectly that the tunnels of Arras were full of French troops. They were worried about the troops in Arras, because in April, 1917, the British, by hiding thousands of men in them, had surprised the Hun and made one of the successful pushes of the war prior to the German advance in March. After interrogation we were sent back to a concentration camp, said camp consisting of barbed wire fence around a brewery. After staying there a few days we were sent to Belgium, where I stayed a few months to treat the British wounded.

We found the hospital to be a very small building, which had formerly been a school for boys; the hospital contained about 700 seriously wounded men, 300 of whom were British. The condition was awful—a great deal of pus and infection, and in some cases the pus had gone through the mattress on to the floor. Some of the men had not been dressed in two weeks.

There was very little gauze for dressing. We used paper. If a patient was fortunate enough to have a gauze bandage he would unroll it himself. The paper was very unsatisfactory, because it got hard and uncomfortable from the excretion of the wounds. For the 300 men we had one German nurse. The principal anesthetic was ethyl chloride, and it was satisfactory. All patients had to be taken to the operating room for dressings, and voluminous records had to be kept. Every wounded man received two injections of tetanus antitoxin. We were allowed a certain amount of drugs and dressings daily, and when these were exhausted we were at liberty to go for a walk under armed guards, provided we did not go through the village. Our usual walk was along the towpath of the canal. The only disadvantage was we had to see great barge loads of good American food go by for French and Belgians, and we were as hungry as any of them.

We made the acquaintance of many Belgian people, and without exception the guard allowed us to speak with them, provided we kept out of sight of the German officers or N. C. O. Their chief grievance against the Germans was the deportation of girls; you could tear down their houses, take their laces, machinery, cattle, wines and gold, but when the Hun deported Belgian girls he did a low thing that the civilized world will not forget or forgive.

The food we were given was dark bread, so often described; plenty of soup and imitation coffee; the coffee was not unlike that

used by our people during the Civil War. When our soup was nice and thick with meat we knew that an Allied aviator had laid an egg on Hun Cavalry, where it did a prisoner of war most good.

In July we were sent back to Germany by the way of Brussels, Metz and Strassburg on to Rasstatt. We found here about 300 French officers—the cleanest, nicest fellows I had ever seen. They were always planning escape, the usual method being to empty straw from their mattress, tie grass on it, get under it and crawl to the fence, cut the wire, throw the cutters back for the next party, let the guard go by, and then go on their way rejoicing. The next morning at roll-call they would, of course, be missing. The superior officer called the roll by barracks, with no better result. For an officer to allow a man to escape means punishment, the usual punishment being to send him to the front. The usual explanation the officers in charge would give is that the men had never been there at all. A Frenchman brought in a wireless outfit and we got the news from the front daily.

We were next sent to an American camp located in the Black Forest. The elevation is something like 5,000 feet; very cool and healthy. Here we secured Red Cross food and were allowed to go walking every day by turning in a word-of-honor card. While at that camp Puryear, Willis and Isaacs escaped. From that time on we had certain restrictions, but on the whole we were not molested by the guards or civilians. There have been a great many charges made against the German soldiers and civilians that are not true; they have done some things that have never been published, but we must remember that in Germany they have the identical propaganda against French, British and Americans. Many of the German people were misled as to the cause of the war, but they were in the midst of their apparently successful drive towards the channel ports and towards Paris; they were entirely satisfied with Hindenburg, Ludendorff and the Kaiser.

**By MAJOR IVAN ISAAC LEMANN, New Orleans.\***

You now have a pretty good idea of what it was like, from the talks you have heard—what it was like at the Base Hospital and what it was like at the front. In general, our life was very different from what most of our friends over here think it was. I am greeted on all sides by friends who exclaim over the wonderful times and

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the dangers and hardships I have had. As a matter of fact, there were very few of us, except Col. Maes, who had real hardships. Most of us slept in pretty good beds, and some of us, like Col. Elliott, lived off the best of the land.

I think you may be interested in one thrilling experience that all of your friends of Base Hospital 24 shared together. It was in crossing the English Channel from Southampton to Havre. We were jammed in on a small boat, no larger than a seagoing tug, so that there was literally no space to sit down. We were supposed to make the trip in about eight to nine hours, but as a matter of fact it took us several hours more than that. We left Southampton about 4 o'clock in the afternoon accompanied by a torpedo boat destroyer to guide and protect us, and about midnight, in the middle of the channel, in the pitch blackness of the night, our engine broke down and we lay becalmed an hour or more. In addition to this, our boat made a terrific noise, letting off steam, and if there had been a submarine within hearing distance we would have made a fine target. In spite of all of this, every one remained perfectly quiet and composed, and there was nothing in the slightest approaching alarm or panic.

Dr. Halsey has told you something about our friends of Base Hospital 24 and the work they did. I feel that I can, with perfect modesty, reiterate and emphasize what he has said, for the greater part of the good work was done after I left them. We have good reason to be proud of them.

After I left Base Hospital 24 I was assigned as chief of the medical service of Base Hospital 76 at Vichy. This was a conglomerate hospital, not representing any particular institution, but made up from various parts of the country. I found conditions there very different from those I had left at Base Hospital 24 in Limoges. The equipment of Base Hospital 76 had not arrived, nor had the nurses. Our enlisted personnel and our patients had to drink their soup and coffee from empty tomato cans, and we had very few kitchen utensils. The equipment that we were able to borrow from other base hospitals in Vichy was equally scanty. But, in spite of all of this, our patients got very good care and our hospital at one time had 1,700 patients. There were three other base hospitals in Vichy, and it was planned that this center should care for approximately 20,000 patients, if the armistice had not come.

Vichy is a city of hotels. Normally it has about 15,000 in-

habitants, and during the season from 50,000 to 100,000 visitors. Altogether, the Americans took over about eighty hotels for the use of the base hospital there.

There are several things in the way of professional experience that I might relate that possibly might interest you. I consider that one of the most valuable experiences I had was to have under my care, under the direction of Dr. Pollock, of Chicago, a considerable number of war psychoneuroses, so-called shell-shock, hysteria, etc. The effect of treating men under discipline made a tremendous impression upon me, and I feel that I have returned an entirely different doctor than I was when I went away. My attitude to my patients, I am sure, has changed considerably, and to the benefit of the patients.

Another experience which was valuable was that which we had in meeting the situation caused by the outbreak of numerous cases of enterocolitis. Most of these came from the front to the base hospitals and were probably due to bad food or bad water. At times we thought some of them due to poisoning. At one time I had several hundred such diarrhea cases on hand in Vichy under the conditions I have already outlined, so that the problem of handling the diet was difficult. In addition to this, we had no bismuth nor any other astringent drug. The situation we met in this way: As each diarrhea patient was admitted, his clothes were taken away and he was put to bed. This was done in order that he might not obtain any food other than that which was brought to him. He was then given a large dose of castor oil, and this was repeated from time to time as needed. As the diarrhea improved, the patient was given a ticket to a soft-diet mess, where he obtained only soft cereals and liquids. Upon further improvement he was promoted to the full-diet mess, for which another ticket was required. With this system we were able to clear up practically all of the cases and relieve the situation that at one time threatened to be alarming in its proportions.

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## NEWS AND COMMENT

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MEETING OF THE AMERICAN MEDICAL ASSOCIATION.—The seventy-first annual meeting of the American Medical Association will be held in Atlantic City, N. J., June 9 to 13.

AMERICAN SOCIETY OF TROPICAL MEDICINE MEETING.—On June 16 and 17, the American Society of Tropical Medicine will hold its meeting in Atlantic City, in conjunction with the Congress of American Physicians and Surgeons and its affiliated societies. It is to be hoped that every member of the Society can arrange to be present and thus help towards the success of the meeting. Members wishing to contribute papers or to present other interesting matter to the Society should notify the acting secretary, Dr. Sidney K. Simon, 1105 Maison Blanche Building, New Orleans.

OFFICERS OF THE LOUISIANA STATE MEDICAL SOCIETY ELECTED.—The officers elected for 1920 at the meeting of the Louisiana State Medical Society, which met in Shreveport, April 8, 9 and 10, are: Dr. L. Henry, of Lecompte, president; Dr. C. P. Gray, of Monroe, Dr. S. C. Barrow, of Shreveport, and Dr. T. J. Dimitry, of New Orleans, vice-presidents; Dr. E. W. Mahler, of New Orleans, secretary, and Drs. W. H. Seemann, of New Orleans, and C. Pierson, of Jackson, were named delegates to the A. M. A. meeting at Atlantic City in June.

CO-OPERATION OF STATES TO CONTROL VENEREAL DISEASE.—On April 1, 1919, forty-four States had passed the necessary laws and will coöperate with the United States Public Health Service in carrying out its program for venereal disease control. Eighteen States have made appropriations equal to that of the Kahn Chamberlain allotment, and eighteen States have established a separate venereal disease division.

RADIUM OUTPUT.—Since 1913, when radium was first produced in the United States, the radium output of the Standard Chemical Company, of Pittsburgh, has been thirty-nine radium element grams, according to *Science*. The total radium production in this country up to 1919 approximates fifty-five grams of radium, which represents probably more than half of all the radium produced in the world.

INFANT MORTALITY RATE LOWERED.—For the past several years the infant mortality rate of St. Louis has been lower than that of any other large city, but in 1918 New York reduced her infant death rate to 91.7, while St. Louis had a rate of 94.4 and took second place. Baltimore was the highest in the list of ten large cities, having a death rate of 147.7, while the death rate for Chicago was 131.3.

SCHOLARSHIP FOR NURSES.—The American Red Cross has announced an appropriation of \$100,000 as a scholarship fund to induce graduate nurses released from the army and navy nurse corps to train for public health nursing. A maximum scholarship of \$600 will be granted for an eight months' course of training and \$300 for a four months' course. The fund will be administered by the Red Cross Department of Nursing, and scholarships will be granted on the recommendation of Red Cross division directors of public health nursing.

PROHIBITION AND DRUG ADDICTION.—According to the assertion of Commissioner Copeland, of New York City, the advent of prohibition will be followed by a large increase in the number of drug addicts. He states that one person in every thirty in New York to-day is addicted to the use of some sort of a drug. The scarcity of liquor has already had its effect on the drug market, he claims, and the amount of cocain which was used in December and January was greater than for the ten preceding months, and in February the increase was so great that the wholesalers had to put a limit on the sales. He urges that steps be taken to meet the coming situation, and pointed out the defects of the law concerning the sale of narcotics.

LONDON PHYSICIANS ORGANIZE BUSINESS UNION.—It is understood that, in view of the impending establishment of the Ministry of Health and its consequent effects on the medical profession, a meeting of the majority of physicians of London was held on February 23 and adopted favorably the immediate organization of the medical profession on a trade basis. Twenty thousand members were expected to join the union. The professional status of the physicians represented at this meeting is not known.

MOSQUITOES FOR ARMY MEDICAL MUSEUM.—According to daily press reports, medical officers at all army camps throughout the

country have been ordered by Surgeon General Ireland to obtain one or more specimens of every species of mosquito found in the vicinity of their camps. The mosquitoes will be classified and placed in the Army Medical Museum.

**SOCIETY FOR THE STUDY OF EPILEPSY TO MEET.**—The next annual meeting of the National Association for the Study of Epilepsy will be held at the Craig Colony for Epileptics, Sonyea, N. Y., June 6-7, under the presidency of Dr. William T. Shanahan, Sonyea.

**RED CROSS IN AFTER-WAR ACTIVITY.**—A convention of the Red Cross organizations of the world, to meet at Geneva thirty days after the declaration of peace, has been called by the International Red Cross Committee. This call was issued at the request of the Red Cross societies of the United States, France, Great Britain, Italy and Japan, whose representatives have constituted themselves a committee to formulate and propose an extended after-war program of activities in the interest of humanity.

**MILLIONS LOST THROUGH RATS.**—It is estimated that \$200,000,000 is lost through the agency of rats each year in the United States. In the average town it is estimated that the rat population equals the human population. Rural districts usually have about ten rat inhabitants for every human inhabitant. It requires about \$2 to support a rat for one year.

**MONEY FOR MEDICAL EDUCATION.**—At a meeting of the General Education Board of the Rockefeller Foundation, appropriations aggregating \$1,108,525 were made to various educational institutions throughout the United States. The largest amounts of this sum were given to medical education, \$400,000 being given to Johns Hopkins University Medical School for the endowment of a department of obstetrics, and \$150,000 to the Meharry Medical College at Nashville, Tenn.

**POSTURE LEAGUE MEETING.**—The American Posture League held its annual meeting March 8. An address on posture in industry was made by Mr. Harry Arthur Hoff, consulting engineer, after which clinical demonstration of methods of recognizing and recording posture were given. Moving pictures and other lantern slides on posture were shown. Addresses were also made on the anatomic demonstration of some of the articles resulting from the technical committee of the league, including the chairs.

DECLINE IN MENTAL DISEASE FROM DRINK ABSTINENCE.—A report from the Health Office of Vienna, New York, reveals a considerable decline in mental disease, which is attributed to the lessening consumption of alcoholic beverages, which are extremely high in price. The inebriates' ward in the Vienna Lunatic Asylum is closed for lack of patients.

THE UNITED STATES CIVIL SERVICE COMMISSION announces an open competitive examination for medical assistant, for men only, to fill a vacancy in the Bureau of Chemistry, Department of Agriculture, Washington, D. C., at a salary of \$2,000 a year. For further information apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

PLAN FOR EUGENICS MEMORIAL.—A "Roosevelt Institute of American Family Life" is proposed by the Eugenics Research Association of Cold Springs Harbor, L. I., to be organized and developed with the eugenics record office of the Carnegie Institute at Washington. The object of the proposal is to provide an institution to combat "race suicide" and to "advance those ideas of responsibility and patriotic parenthood for which Theodore Roosevelt so valiantly battled."

BACTERIOLOGISTS FOR CAMPS AND HOSPITALS.—A special three months' course for those who wish to qualify as laboratory assistants in bacteriologic work for immediate service in camps and hospitals has been arranged by the New York University and Bellevue Hospital Medical College. A call for those assistants has been issued from the Surgeon General's office. The course is arranged by Dr. Wm. H. Park, director of laboratories for the health department, and Dr. Anna W. Williams, assistant director. The fee is \$75; a few scholarships may be available. Preference will be given to college women with some preliminary training. Applications may be made to Dr. Park at the New York Department of Health.

THE OWL DRUG COMPANY'S COMMENDABLE POLICY.—An announcement has been made by the Owl Drug Company, with a large number of retail drug stores in California, Oregon and Washington, that no preparations for the self-treatment of gonorrhea will be sold in any of its stores. Remedies for the purpose will only be sold on prescriptions by physicians.

**SIR HERMAN WEBER DIES.**—Sir Herman Weber, renowned in the field of tuberculosis and laryngology and author of the "Prolongation of Life," died recently in London, aged ninety-five. He retired from practice at eighty, but spent daily two or three hours in the open air, walking from thirty to fifty miles a week. He was among the first to advise the tuberculous to go to the mountains, even in winter.

**NOBEL PRIZE AWARD.**—Prof. C. G. Barkla, professor of natural history in the University of Edinburgh, was awarded the Nobel Prize for 1917 for researches in Röntgen rays and secondary rays.

**PERSONALS.**—Dr. Livingston Ferrand, president of the University of Colorado, was appointed by President Wilson chairman of the Central Committee of the American Red Cross, to succeed William H. Taft.

Dr. Charles S. Holbrook, formerly associated with the Louisiana Insane Asylum at Jackson, has opened an office in the Cusachs Building, New Orleans, and will limit his practice to neurology and psychiatry.

Dr. J. T. Nix, Jr., announces that he has opened up offices at 1407 Carrollton avenue, New Orleans.

Among the Louisiana men who have returned, since our last list, from service in this country or abroad, are: Drs. P. J. Carter, O. L. Pothier, E. L. Fenno, W. L. Bendel, L. J. Genella, L. A. Ledoux, P. L. Querens, J. Geo. Dempsey, J. F. Dicks, C. P. Holderith, J. M. Singleton, New Orleans; W. M. Ledbetter, P. W. Oden, G. W. Birchfield, Shreveport; T. W. Evans, Jackson; W. P. Lambeth, Allendale; J. C. Burdett, Pelican; C. C. Self, Barham; J. J. Robert, Baton Rouge; J. D. Frazier, DeRidder; P. A. Kibbe, Erath; E. R. Yancey, Jonesville; C. E. Verdier, Madisonville; K. A. Roy, Mansura; J. F. Dunshie, Poydras; T. Butler, St. Francisville; J. T. Cappel, Alexandria.

The following doctors of New Orleans attended the meeting of the Louisiana State Medical Society, held in Shreveport last month: A. E. Fossier, H. E. Bernadas, W. H. Harris, A. G. Friedrichs, Allan Eustis, W. H. Knolle, E. W. Mahler, Homer Dupuy, H. W. E. Walther, H. Leidenheimer, W. J. Durel, T. J. Dimitry, M. W. Swords, C. V. Unsworth, J. A. O'Hara, A. Granger, F. J. Chalaron, Paul Gelpi, H. B. Gessner, J. H. Ellis, A. Nelken, Louis Levy, Isadore Dyer, L. L. Cazenavette, C. L. Eshleman, M. P. Boebinger.

F. J. Kinberger, E. C. Samuel, A. L. Levin, Chas. Chassaingnac, J. T. Nix, Wm. Kohlmann, W. C. Hendrick, E. F. Salerno and W. H. Seemann.

MISS DELANO, RED CROSS DIRECTOR, DIES.—Miss Jane A. Delano, who died April 15 at Base Hospital No. 8 at Chauvigny, France, was one of the foremost figures of the nursing world. More than 30,000 nurses were recruited under her direction, through the American Red Cross, for service with the army and navy after the United States entered the war. She was born in Watkins, N. Y., in 1862, and graduated from the Bellevue Hospital, New York, in 1886. Shortly after her graduation she volunteered to nurse a yellow fever epidemic in Jacksonville, Fla. Her work then took her to Bisbee, Ariz., where she established a hospital. Two years later she became superintendent of the nurses' training school of the University of Pennsylvania, and five years afterward of the Bellevue Hospital. She served three times as president of the American Nurses' Association and several years as head of the directorate of the *American Journal of Nursing*. She was a woman of striking personality and appearance. A gentle manner and a sympathy that was boundless won for her a great circle of friends. Miss Delano served the American Red Cross from first to last without compensation.

DIED.—On April 9, 1919, Dr. James H. Holstein, of New Orleans.

On April 17, 1919, Dr. Irene Cier, of New Orleans.

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## BOOK REVIEWS AND NOTICES

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*All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

**The Newer Knowledge of Nutrition. The Use of Foods for the Preservation of Vitality and Health,** by E. V. McCollum. The Macmillan Company, New York.

This little book contains the results of extensive research as to the essential elements in normal nutrition and growth which have been conducted by McCollum and his associates and which have appeared from time to time since 1913, mostly in the **Journal of Biological Chemistry**.

Reaching so few clinicians by this means, the book should be well

received. It is intensely interesting to one even with no special knowledge of metabolism, and can be especially recommended to pediatricists. McCollum proves, by carefully-controlled experiments, that milk (butter-fat) and the leaves of plants are to be regarded as protective foods and should never be omitted from the diet.

The chapter on "Deficiency Diseases" adds considerable practical knowledge to the earlier work of Funk and Frazer and Stanton. The general practitioner will be especially interested in the chapter on "The Planning of the Diet," in which the following appears:

"Liberal consumption of all the essential constituents of a normal diet, prompt digestion and absorption and prompt evacuation of the undigested residue from the intestine before extensive absorption of products of bacterial decomposition of proteins can take place, are the optimum conditions for the maintenance of vigor and the characteristics of youth."

The text is amply illustrated by illustrations and charts. The book should be read by every physician and trained nurse. A. E.

**Compend of Genito-Urinary Diseases and Syphilis**, by Chas. S. Hirsch, M. D. P. Blakiston's Son & Co., Philadelphia.

This compend is probably neither better nor worse than compends usually are. There must be a fair demand for this character of book, as this is the second edition now offered, yet it seems to the reviewer that they generally present either too much or too little on the various subdivisions of the subject handled. This edition calls for more careful proof-reading. C. C.

**Information for the Tuberculous**, by F. W. Wittich, M. D., Instructor in Medicine and Physician-in-Charge, Tuberculous Dispensary, University of Minnesota Medical School; Visiting Physician, University Hospital, Minneapolis, Minn. C. V. Mosby & Co.

This little book is carefully and accurately written, and may be with safety and with advantage placed in the hands of the tuberculous patient. The style is clear and pleasing, so that its perusal and study is not difficult. Only occasionally does the author seem to go beyond what the average layman may be expected to understand fully without technical training. A little half-comprehended information is sometimes a dangerous thing. LEMANN.

**Clinical Medicine for Nurses**, by Paul H. Ringer, A. B., M. D., Member of Staff of Asheville Mission Hospital, Asheville, N. C., and of Biltmore Hospital, Biltmore, N. C. F. A. Davis Company.

This compend is modern and reliable. It may be commended to lecturers as a guide and outline of the scope of talks to nurses, and also it may be recommended as a basis for class lessons and quizzes. LEMANN.

**The Medical Clinics of North America**. September, 1918. U. S. Army Member. W. B. Saunders Company, Philadelphia and London.

This number presents an excellent and valuable collection of papers dealing principally with various types of pneumonias and their complications occurring in the camps last year. Particularly noteworthy are the papers of Hamburger and Fox on *Pneumococcus* and *Streptococcus* Infections and Measles at Camp Zachary Taylor, and that of McCallum on

**Streptococcal Pneumonias of Army Camps.** Those who saw service in the camps will find here an epitome and review of their experience. Those to whom this service has been denied will gain a good idea of some of the problems encountered and of some of the lessons that have been learned.

LEMANN.

**A Practical Medical Dictionary**, by Thomas Lathrop Stedman, A. M., M. D. Fifth revised edition. Wm. Wood & Co., New York.

The usefulness of a standard dictionary is dependent upon its continued revision. The fact that over fifteen hundred new titles and subtitles have been added in the present volume, many of them arising from the war, should maintain the popularity of this publication, already so well established.

DYER.

**Quarterly Medical Clinics**, by Frank Smithies, F. A. C. P. Medicine and Surgery Publishing Company, St. Louis.

This publication consists of the detailed case reports and observations on fifteen cases occurring in the clinic practice of the author, and of which careful notes were taken during the period of observation. With a view to employing the material for teaching purposes, the cases are systematically arranged and presented, with history, examinations, and detail of method of special examinations are given. Numerous illustrations are included, showing X-ray findings, technic, apparatus, etc. Such case discussions are always of interest to the reader who may not see the clinic itself. The publishers have spared no effort to present the matter contained in an excellent manner, as far as print, plates and general arrangement are concerned.

DYER

**A Manual of Prescription-Writing**, by Matthew D. Mann, A. M., M. D. Revised by Edward Cox Mann, M. D. Sixth edition. G. P. Putnam's Sons, New York and London.

Excellentlly arranged, with comprehensive contents in small compass, this little book seems to offer all that is necessary to educate the student (or doctor) to the right way of writing prescriptions. The book thoroughly emphasizes the importance of Latin in prescription-writing, and is an excellent plea for the more earnest consideration of Latin as a prerequisite to the study of medicine—that is, if real prescription-writing is to survive.

DYER.

**Tropical Surgery and Diseases of the Far East**, by John R. McDill, M. D., F. A. C. S. C. V. Mosby Company, St. Louis.

Altogether a most interesting contribution to tropical medicine, with added value in the surgical opportunities and experiences related from the author's own practice among different peoples. In a number of years as medical officer in the army in Cuba, in the Philippines, and from association with medical men in China, Japan and other places in the Far East and in the tropics, the author has gathered his material, which ranges from the newer leishmaniana to surgical technic in amebic dysentery. Many illustrations, of which the most important are original drawings, add interest to the text. The obscurer diseases of gangosa, yaws, and such, are well described, and the diseases of the Far East, compiled and carefully worked out from material derived from medical men working in these fields, are particularly valuable.

DYER.

## PUBLICATIONS RECEIVED

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**W. B. SAUNDERS COMPANY**, Philadelphia and London, 1919.

**Clinical Microscopy and Chemistry**, by F. A. McJunkin, M. A., M. D.

**The Surgical Clinics of Chicago.** February, 1919. Vol. 3, No. 1.

**P. BLAKISTON'S SON & CO.**, Philadelphia, 1919.

**Electricity in Medicine**, by George W. Jacoby, M. D., and J. Ralph Jacoby, A. B., M. D.

**WILLIAM WOOD & CO.**, New York, 1919.

**War Surgery of the Face**, by John B. Roberts, A. M., M. D., F. A. C. S.

**A Textbook of Pathology**, by Francis Delafield, M. D., LL. D., and T. Mitchell Prudden, M. D., LL. D. Eleventh edition, revised by Francis Carter Wood, M. D.

**THE MACMILLAN COMPANY**, New York, 1919.

**Tuberculosis of the Lymphatic System**, by Walter Bradford Metcalf, M. D.

**GOVERNMENT PRINTING OFFICE**, Washington, D. C., 1919.

**United States Naval Medical Bulletin.** Report on Medical and Surgical Developments of the War, by William Seaman Bainbridge.

**Public Health Reports.** Vol. 34, Nos. 10, 11, 12 and 13.

### MISCELLANEOUS:

**Annual Report of the Directors of the American Telephone and Telegraph Company to the Stockholders.** For the year ending December 31, 1918.

**Special Report of the Attorney General of Porto Rico to the Governor of Porto Rico Concerning the Suppression of Vice and Prostitution in Connection With the Mobilization of the National Army at Camp Las Casas.** February 1, 1918.

### REPRINTS.

**Some Clinical Examples of Low and Lowered Systolic Blood Pressure; Diet in Cardiac Insufficiency; Cardiac Hypertrophy as Observed in Chronic Nephritis; Ulcerative Angina; Typhoid Spine; Human Glands; The Vicious Circle in Oral Sepsis; Salvarsan in the Treatment of Double Infections, Tuberculosis and Syphilis; The Treatment of Four Severe Generalized Streptococcus Infections With the Combined Employment of Anti-Streptococcus Serum and Autogenous Vaccins**, by Nathaniel Bowditch Potter, M. D.

**Medical Supervision of Athletics Among Boys at Boarding School**, by Nathaniel Bowditch Potter, M. D., and James Taylor Harrington, M. D.

**Streptococcus Oral Sepsis: An Attempt to Apply a Complement Fixation Test and to Determine the Value of a Routine Blood Examination**, by Nathaniel Bowditch Potter, M. D., Samuel Bradbury, M. D., and Archibald McNeil, M. D.

**Notes on Minor Cutaneous Affections in the Anglo-Egyptian Sudan**, by Albert J. Chalmers, M. D., F. R. C. S., D. P. H., and Alexander Marshall.

**Enterica in the Sudan**, by Major R. G. Archibald, M. D., D. S. O., R. A. M. C.

**The Classification of Trypanosomes**, by Albert J. Chalmers, M. D., F. R. C. S., D. P. H.

## MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for March, 1919.

CAUSE.	White.	Colored.	Total.
Typhoid Fever .....		1	1
Intermittent Fever (Malarial Cachexia) .....		2	2
Smallpox .....			
Measles .....			
Scarlet Fever .....			
Whooping Cough .....		1	1
Diphtheria and Croup .....	1		1
Influenza .....	24	11	35
Cholera Nostras .....			
Pyemia and Septicemia .....			
Tuberculosis .....	60	36	96
Cancer .....	20	5	25
Rheumatism and Gout .....		1	1
Diabetes .....	3		3
Alcoholism .....			
Encephalitis and Meningitis .....	4		4
Locomotor Ataxia .....	1		1
Congestion, Hemorrhage and Softening of Brain .....	14	7	21
Paralysis .....	2	1	3
Convulsions of Infancy .....		2	2
Other Diseases of Infancy .....	12	2	14
Tetanus .....		1	1
Other Nervous Diseases .....	3	1	4
Heart Diseases .....	50	37	87
Bronchitis .....	1	12	13
Pneumonia and Broncho-Pneumonia .....	35	31	66
Other Respiratory Diseases .....	3		3
Ulcer of Stomach .....			
Other Diseases of the Stomach .....	1	3	4
Diarrhea, Dysentery and Enteritis .....	8	14	22
Hernia, Intestinal Obstruction .....	3	3	6
Cirrhosis of Liver .....	5	1	6
Other Diseases of the Liver .....	4	2	6
Simple Peritonitis .....	1		1
Appendicitis .....	3	3	6
Bright's Disease .....	25	13	38
Other Genito-Urinary Diseases .....	17	9	26
Puerperal Diseases .....	2	2	4
Senile Debility .....	8		8
Suicide .....		1	1
Injuries .....	25	18	43
All Other Causes .....	38	18	56
<b>TOTAL</b> .....	<b>373</b>	<b>228</b>	<b>601</b>

Still-born Children—White, 21; colored, 17; total 38.

Population of City (estimated)—White, 283,000; colored, 106,000; total, 389,000.

Death Rate per 1,000 per Annum for March—White, 15.82; colored, 25.81; total, 18.54. Non-residents excluded, 15.64.

## METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure. . . . . 30.04  
Mean temperature. . . . . 64  
Total precipitation. . . . . 3.22 inches  
Prevailing direction of wind, southeast.



# NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

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ISADORE DYER, M. D.

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Vol. LXXI

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No. 12

## EDITORIAL

### THE CONTROL OF VENEREAL DISEASES.

Our editorial on "Some Psychology of Syphilis" has attracted notice, and we are even put in the vocative as to our sympathy with the general movement to control venereal disease.

No sane man or woman would oppose any intelligent attempt at the control or prevention of venereal disease, and we consider ourselves with the majority. It is a waste of time to undertake to debate the usefulness of propaganda which only terrifies, when the purpose of the nation-wide movement is towards education, relief and control.

The Louisiana Sanitary Code has large authority, but only as

conferred upon it by the State, and if the Code permits a local health board to issue circulars with mandatory regulations, then these must be supported by the law, when a physician, in his own sense of righteousness, refuses to obey.

In our May editorial we dealt with only the psychological feature of the Health Board's circular, but, if we may now discuss another phase, we should like to know by what superior authority the Health Board violates the law dealing with venereal diseases.

The City Board of Health has issued a lot of circulars carrying report blanks. We have said enough about the circular which "must be handed to the patient." The blanks must also be filled out. These blanks carry a rather complete inventory of the individual patient, including his address, etc., height and weight being overlooked, though the *name* of the patient is not required (*sic!*)

Under Section 4 of Act 61 (Louisiana), one reads: " \* \* \* the said report shall be made within twenty-four hours after the case is first diagnosed as a venereal disease, and the said report shall be made on, or in *substantial conformity with* (italics ours) a blank provided for that purpose by the said board. The report *shall not contain the name or address of the person* suffering from the venereal disease," etc., etc., etc. (Italics, again, ours.)

We repeat that we are heartily in accord with the movement to control venereal diseases, but would it not be well for the boards of health to at least read the law before they promulgate what purposes to be the rules and regulations which the law directs?

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### TENTH MEETING OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

The meetings of the congress will be held at the Hotel Traymore on Monday and Tuesday, June 16 and 17, 1919. A series of papers of exceptional interest is to be presented dealing with a number of phases of reconstruction.

The various associations which constitute the congress will also meet at Atlantic City. Included is the American Society of Tropical Medicine, under the presidency of Dr. C. C. Bass, of New Orleans. Excepting the program of the general meeting, no publication as yet has appeared dealing with the scope of the meetings of the individual associations, but, the A. M. A. meeting the preceding

week, and with the opportunity for attending the two bodies in such close proximity as to time, should encourage a large attendance.

While the meetings of the congress provide for contributions from constituent members and guests of the associations, all meetings are open to physicians interested, and any physician of good standing may register for them all. Through such registration he not only is privileged to attend all of the meetings, but it provides also a copy of the transactions, which, heretofore, have always been valuable.

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### **A CORPS OF PHARMACISTS FOR THE ARMY.**

The National Pharmaceutical Service Association is agitating the support of H. R. Bill 5531, known as the Edmonds Bill, which aims at better recognition of pharmacists in the army by the establishment of a Pharmaceutical Corps, with equal rank and privilege as members of the Medical Corps.

The movement is timely and the bill proposed is framed so as to adequately safeguard the professional requirements which should go with rank in the Medical Department of the Army. The pharmacists themselves are responsible for the shortcomings of their fellows. Few States are rigid in their qualifying examinations for licensure, and mere drug clerks are given authority to dispense drugs and fill prescriptions, without ever having taken a course in pharmacy.

Louisiana is a striking example. No college course in pharmacy is required, and most of the licensees of the Louisiana Board have examinations after a drug-store apprenticeship or after a quiz course of a few months. In this State, as well as in others, schools of pharmacy meet with small encouragement, as the graduation from such schools is not a prerequisite to the practice of pharmacy and, as a matter of fact, students in schools of pharmacy after one year of study are admitted without question to the licensing examinations.

The Medical Corps of the Army requires graduation from a recognized medical school, and no less a requirement should be demanded of pharmacists. Recognized medical schools demand both high school and college courses preliminary to the study of medicine, while there are few schools of pharmacy which require as much as

one year of a high school for entrance. The ambition of the pharmacists in connection with army service is commendable, but they should see to it, before reaching the place for which they are striving, that their own training shall be adequate. State boards of pharmacy, by requiring a proper preliminary education and by demanding a degree in pharmacy before examination is allowed, will go far in meeting sympathetic support in this movement for a better recognition.

It is absurd to think of rating pharmacists, or, better, drug clerks, in the same rank and class as physicians, when by virtue of their training they are not educated to more than their present top-sergeant place.

The requirements set forth in the Edmonds Bill, that the applicant shall be a graduate of a reputable school of pharmacy, should make some dent in the practice of those State boards which have a lower estimate of the profession of pharmacy.

There can be only one mind as to the desirability of having a proper and sufficient recognition of pharmacy in the army, and if the Edmonds Bill will allow this it should pass.

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#### NOTE.

In the *Journal of the American Medical Association* of May 10, listing the new officers of the Louisiana State Medical Society, Dr. Amédée Granger is named as president, instead of Dr. E. L. Henry, of Lecompte, who was elected. The error evidently is a repetition of that contained in a daily newspaper. Dr. Granger was elected president of the Röntgenological Association.

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## ORIGINAL ARTICLES

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(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

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### RECOLLECTIONS OF THE WAR IN EUROPE,

From June, 1917, to February, 1919,

By CAPTAIN LOUIS JULIAN GENELLA,

Attached to the British Expeditionary Force in France.\*

When, in 1914, the horde of nomadic Huns (thinly veneered with a few centuries of civilization) poured through Belgium and over the marshy reaches of Flanders and Picardy, they left a wide and desolate land as a heritage for the four years of war to come. From the fortress of Verdun to Zeebrugge, on the channel, one may roughly say the land grew to resemble the swamps near the channel of Chef Menteur. Swaying to and fro over the wild stretch of barbarism, placed in the heart of a beautiful and refined civilization, the nations of the earth have since battled for position for a Waterloo. The eagle of victory ever loves an unstable perch, and despairingly flew from the cause of the invader to the defenders of refinement.

After Von Hindenburg's masterly retreat from his hopeless position on the Somme back into the now justly famous Hindenburg ditch system, the British Army was wedded to the doctrine of pursuit and attrition on the Central Allies' resources. As part of that doctrinary campaign, the British were all set to blow off the top and base of the foothills of the Messines Ridge when I first joined them in June, 1917. Along with the veterans of Mons and the Somme, we crowded them for a year, until, at last, the foot of the Rue de la Republique of Mons was in view of our observation balloons.

Messines, the Paschendale Ridge fight, Cherisy, Cambrai, the counter-attack; the long, cold winter campaign of 1917, the heart-breaking spring retreat of 1918, the unity of command, the American awakening, the outpouring of American reserves into France,

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Château Thierry, the Marne, Soissons, the attack on Rheims, the stand at Handgar on the Sartier, the consolidation of the St. Mihiel salient, the firing on Metz, the swinging around the hills near Grand Pré, and, lastly, the penetration of the Argonne Wood and the feasting of the eyes on the Rhenish provinces, had all passed into their allotted places in history when, after the signing of the armistice, I left the estuary of the Garonne for home and peace.

I will leave it to better qualified speakers to instruct you about the rapid making of geography and history, and will try, by the simple telling of what I saw and heard at first hand, to amuse or entertain you. I feel sure I got in touch with all aspects of the front line, nearer than any single individual attached to the war of the Western front. There were no exceptions; all proved such wonderful fighters, great fellows and machines when oiled with the balm of opportunity and the spirit of "*I am where I have a right to be.*" Swearing was both the constructive and compelling force of the front line, and its non-use here must of necessity cause a jerky construction to my simple narrative.

"No Man's Land" was as varied a place as one may well imagine—often a mile across; often a dozen yards. An average on the Western front would be about one hundred yards with the British, the same with the Americans, and about one mile with the French. The difference in these widths was in part due to the different types of campaign followed by each separate army before the unity of command inaugurated the same doctrine for all. An event taking place in one part of the line out in No Man's Land may not have been any more dangerous than a trip across Canal and Baronne streets during Carnival. In the Ypres salient, eight and ten miles back was more dangerous than under the wires near the Swiss border.

If you all are really interested in No Man's Land on an active sector, I shall try to let you place your mental hand on this little-known territory. Approximately in size it would resemble Elysian Fields street near Claiborne avenue, if all the surrounding trees and property were knocked down by a house-demolishing company. The two deep ditches on either side would be a fair idea of a badly-dug trench system, and the ditches running up the side streets would be the communicating trenches back to the reserve trenches on the streets above and below. Now, presume the Germans held the ditch

below the avenue and the Allies were on the upper side. Both sides would crawl out at night ("working parties") and string barbed wire in front of their ditches. Each side (yet Heinie always going one better in quality and quantity) all night would fire up varied colored lights to illuminate the intervening spaces, so that they could keep a sharp lookout for any movement on the part of their opponents. All front trenches were thinly held, often only one man to a hundred yards. Snipers placed around in shell holes killed any one seen to move within a half mile of their location. At stated intervals patrols of about a dozen men would be sent out to crawl all over the land and report any event worth noting. Often these patrols would be given the job of cutting the enemy's wire, or to listen to any chance remark in the front line. All gun flashes as seen from No Man's Land were always carefully noted. Often a raiding party was sent over to enter the enemy's trench, and either to kill all seen, blow up any existing dugouts or to bring back prisoners for information. Often, if these raiding parties got one prisoner, a whole attack was forestalled.

If I have falsely led you to believe that this God-forsaken land was a place of joy and inviting excursions, a place for laughter, for companionship and recreation, let me at once correct such an impression. It was the land built for dark and nameless deeds, from which the oldest veterans recoiled when it chose to show its ugly moods; where the dead and dying were often left to toss and rave in the agony of their last hours, without a soul, a custom or a law, above the one of self-protection. So hair-trigger was the span of life out there that frequently patrols meeting each other would pass on without firing a shot—their judgment warning them that the slightest movement being the signal to set off a carnival of death for miles around. Suppose the *Times-Picayune* would come out tomorrow with the headlines, "Two Tulane Students Found Mangled to Death by Lions Back in the Swamps," would it appeal to any of you as a joyous event? How often have we known of more than ten times that number of Eton and Harrow and Oxford students blown to bits in No Man's Land by an enemy bombing patrol. I heard of a Scotch lad who went out into No Man's Land when he was hardly out of college six months, and running into a German patrol (hid in a shell hole). He naively (in German) asked them how many they were. Receiving the answer, "Seven," the Scotchman

promptly threw four Mills bombs in rapid order into the crater, remarking then, "Divide these four amongst you seven."

No Man's Land was the land of the murderer and for the killer and killed, and that was all. "The Rose of No Man's Land" listens well in song, but in reality it was more an onion or a lemon.

Just how many men left their own front line to take up their positions under the enemy's barbed wire in time to jump on him with a bayonet thrust at zero hour and never returned can only be guessed, and probably never will be obtainable. The reported new inventions of the Americans always sent a strange, demoralizing influence over the whole front line of the Germans.

Whenever a sector was completely turned over to the American troops they at once tried to get as close to the enemy as possible, and so, in a short while, No Man's Land with them became more a narrow strip of death, like the British front. The French, being more accustomed to large engagements and saving reinforcements, of course (looking at the war through that doctrinary viewpoint) always had a broad and generous No Man's Land.

Whenever any one asks for information about the place women occupied in the war, one can only repeat that they were everywhere regulations would let them go. They always tried to crowd as near the danger line as possible. If volunteers were asked to go out front to the evacuating centers, usually everybody volunteered. So dangerous were these hospitals from an air defense standpoint that most of the hospitals were dug in a sort of hollow space, each ward down about two feet, to avoid having a whole section destroyed by a single air raid. Our reserves lay outside of Etáples when half of St. John's Hospital was blown to splinters, along with about seventeen nurses and other female help. The daughters of titled noblemen drove our cars and ambulances; women with many millions at their command fed the soldiers; the wives and daughters of the world's great rulers thought it an honor to hold democratic conversation with the soldiers of France, England, the United States and our many other small, yet indomitable allies.

As for the famous fighting faces we heard so much about, I will say, without a moment's hesitancy, that I have never seen a man with a brutal or domineering face or hammer-jaw type of fighting face that was any good under fire. The real fighting face, the face whose owner usually has a Victoria Cross or a Croix de Guerre or

a Congressional medal pinned on his breast—the men whose immediate comrades call him a hero—in type is usually a small man, grey eyes, large, serious mouth, small chin, small ears, faraway look in his eyes; a low, modest voice, and a sort of slow-drag way of talking, and never by any possible chance was he ever even a near approach to a dandy.

Nothing out front ever impressed us as a great event, but more as a generous collection of small and, often, petty events. The usual greetings and answer out front were: “Anything doing?” “Nup, not much.”

The chief dread seemed to be of monotony. After the first year out front, and one had seen everything worth seeing, repeated many times over, the monotony just got hold of one and the feeling of chronic fed-up-ness seemed around. No one minded the hardships or dangers at all—it’s monotony, remember, I am talking about. I can best explain this feeling amongst the men who had seen two and three years’ service and were still out front, by hazarding a guess that they were just a little homesick. Remember, many of them had been at it for four years. “Weeks of monotony, combined with moments of terror,” was all we had to look forward to, and we grew to love the moments of terror as a break in the monotony.

The Irish, the Scotch, the English miners, the Welshmen, the boys of the Rainbow Division, the Missouri, the Alabama and the Pennsylvania troops seemed never happy unless they were in a scrap. The first night the Alabama crowd went into the line they hung a notice on Heinie’s wire, “Commend your souls to God, because Alabama’s going to get your goat.” and followed this up the next night by going over unarmed and choking a sniper to death with their bare hands.

The luckiest and bravest thing I knew of was the single-handed feat of an Australian second lieutenant, who for fourteen days went over the top and brought back prisoners without any assistance, and on one occasion armed only with his nerve.

The Y. M. C. A. were not such bad actors as some would have you believe. They did charge stiff prices, yet their goods were always dependable, and, where there was no Y. M. C. A., there were never any goods. I have often seen their huts under fire, and once saw one on the Cojeul River completely wiped out by a battery of whizz-bangs.

The Red Cross was always ready to give all needed medical supplies and was a great help to the soldiers. The Red Cross always was, and is now, all right.

The Irish seemed to have the most men under fire within five miles of the enemy. The Irishman is as hard to understand as the League of Nations. The Irishman will roast England for a week and then go in and outfight anything on the Western front and take Pachendale Ridge. The greatest number of casualties on the front went through an Irish regiment. The best soldiers out front, by reputation, in order of their accomplishments, were the Scotch, the Australians, the Irish and the marines, and, as a whole, the Rainbow Division. The Alabamians and kilted Highlanders were the most picturesque. When you mentioned artillery out front, you always meant the French, or "Frogs," as we called them. The French were as far ahead of every one else in artillery personnel and equipment as one could well conceive. A whole corps of French guns could drive in, take position and hit a target before any other artillerymen would be able to even line or tape one gun. A "Frog" thought as much of one of his 155 c. m. guns as he did of his own two eyes.

The French outplanned the Germans to a marked degree, and would never engage an enemy unless all of Napoleon's rules had been followed. The French seemed to be the only ones who correctly followed the plan that only large engagements were worth while and mass formations were wrong and were useless.

The British Army impressed me as an organization well able to live up to its trademark: "Guaranteed to win any war its people wish it to win," or "You can beat us as often as you wish, but England shall always win the last battle."

Don't ask me to endorse any such statement that the British were done for, the Belgians had quit, and the French were bled white. None of our Allies had ever faltered one single step in their resolve to conquer, or die in the attempt. To say that at times the outlook grew ever darker and the roads to success seemed even thornier and bloodier, is only to say the part truth. America can never shed the glory of her army's true attainments in this war; don't let the few who wish her to have all the glory dim the true glory America did achieve. Every man, woman and child I ever spoke to has agreed that Germany could no more hope to face the

storm of the American offensive in 1919 and 1920 and the position held by the Americans at the close of 1918, than can the rabid doctrine of Bolshevism withstand the cold reasonings and results of economic necessities.

Just what did America do in the war? America and the American spirit for possessing the dash to make a perfect finish to anything the Allies had already well started, was always our surest asset. The American machine-gun barrage at Chateau Thierry, the perfect liaison of her forces at St. Mihiel, and the great force America threw into the Argonne wood fight were the distinct features that really alarmed the Germanic commanders and clear reasoners at the head of things in her army. The American Army possesses one great asset, in that it eternally keeps the individual soldiers of the enemy on the fence with just what they may have up their sleeves. Back at the bases, this don't look like much of an asset, yet out front, on the edge of No Man's Land, one hates to go to sleep knowing a horrible possibility may be just over there among the barbed wires. The soldier cares little for the dangers he knows about, but those he can only vaguely surmise always hold a peculiar dread for him.

American diplomacy and American womanhood taught Germany to be ashamed of her servile bending of the knee to brute force. They taught Germany that an objective in war won by unspeakable barbarism was in fact lost to them in results. America taught Germany that, if she thought bombing cities with a dozen planes was right, then America would let German citizens feel the crashing of ten times a dozen air bombs. America taught Germany that, although a great nation like the Czecho-Slovak could be held into abject national slavery for five hundred years by a nation of inferior beings, yet their liberty-loving souls were still alive and ready to raise their national banner in the cause of the Allies wherever a few dozen of them could escape from the iron heel of Prussianism. America taught Germany that a few dozen murderers, exploiters and petty tyrants in command of a few thousand deluded citizens could destroy in a night the respect and veneration a civilized world felt for the name of the great Germanic scholars had slowly built up for their Fatherland through a hundred years. America showed that patriotism was a better soldier-builder than force, that the indomitable spirit of the American marine force was submarine-proof

in spirit, even if the submarines did drown a few hundred men in a few minutes off the Azores. America did not produce ten thousand airplanes, nor can a Liberty motor carry a plane around the world, yet the spirit that animated the American women and children to donate to the great air offensive bills in the halls at Washington carried into the hearts of the German soldiery a great, overwhelming dread that the hour of retribution was near at hand.

The French's 155 were the soldiers' greatest friend, as they never fired shorts when handled by a Frenchman.

Many funny things happened during our life out there. If a soldier was killed, and by accident his town or nativity was in doubt, he was promptly put down as of the nationality and town of some comrade's choice. This seemed to the men to be the right thing and as a sort of kindly offering to the dead. As one soldier explained it: "He 'ated to 'ave 'im be planted without no 'ome." Also, if he had no religion, he was usually ticketed to the Church of England, for, as it was also explained, "It was his own fault if he had no religion while he was living, but it would be ours if we let him go to hell without one when he was dead."

The Archies, or anti-aircraft batteries, were called the "Gold Fish" batteries, because all their misses were done in public, never in private. Whenever you heard a soldier say he had seen an anti-aircraft battery hit a plane you could be sure he had never been out front.

A well-trained soldier could only dig a small trench after one full day's labor, yet under fire he could dig a funk hole in thirty-two seconds or less.

The oddest and most extraordinary sight of the whole front is to see the old French peasants and little children mouching around under shellfire, just sort of carrying on with their daily farmwork, and not seeming to give a second thought to the war. Their extraordinary sang froid is unbelievable. If their attention is directed toward a shell-burst, all the satisfaction you get is to have one of them murmur, as a sort of address to a Deity, "Cela ne fait rien," and let it go at that.

An old German trench pipe that has seen hard service can be smelled a hundred yards farther than any army gas. Often the smell is carried by the wind five hundred yards across No Man's Land.

The little swallows were a source of a great deal of companionship to us. They lived with us, around us and amongst us. They courted, married and built their nests, sort of all mixed up in our daily life, and in the fall we hated to see the little beggars go—it seemed to foretell another winter in the trenches. When the swallows blusteringly flew into the dugout entrances we promptly ducked, as they sounded like a whizz-bang.

The greatest joke of the day used to be the daily "communiques" of the Intelligence Department. These seemed to us to be usually just imaginations of the S. O. S., more than anything of military importance. "A plank was seen in A. 5.8," and "Soldier was seen carrying a plank at B. 5.4," "A ration party was seen at L. 3.9"—all of such junk were records of events that were bound to be taking place all the time and that every soldier could know for himself.

The listening machines out front were of extraordinary help to the troops, and many a choice bit of stuff went out, into and through the impenetrable gloom of night from a target directed only by the sound-recording mechanism. The French, as usual, had the only machine out front worth spending energy on. The American listening machine was good, yet the French was just a bit better.

Just how a battle is planned and carried out, as viewed from a single soldier's viewpoint: Let us take the part the Irish Lancers were given at the battle of Cambrai. They were supposed to do a stunt that would attract all the fire of the Germans while the balance of the army went over in silence to a surprise attack—a nice prospect to look forward to. Those troops intending to take part in the attack are usually taken about nine miles behind the lines and drilled in attacking an exact replica of the trenches. All watches are checked and counter-checked to see that they are exact to the fraction of a second. Every part of the army is given its part to do in the coming fight. Only the last detail is left to individual commanders. Often these commanders make a sort of agreement of honor amongst themselves as to variations from the set plan. These private agreements are often like skating on thin ice; of course, if all goes right, the agreements are classed as Napoleonic; if anything goes wrong, brainless cowards and bone-heads is the least said to them, and often the firing squad for these would-be Napoleons. All of these mistakes in war are honestly never mistakes of the heart, military history to the contrary notwithstanding.

Usually the night before the message comes that zero hour shall be at, say 5:10 a. m., and at 5:10 a. m. things surely happen. Now, poor old Heinie! What an impressive sight it is to see him "carrying on," all unconscious of just what is in store for him now, plus a second.

Let me give you a list of all the nice things an army can and usually does give up at zero hour. Let us say on a half-mile front: A squadrilla of bombing planes plants all the explosives they can carry, swisch! down on battalion headquarters. The infantry, with their sacks full of bombs, their rifles at fixed bayonets and their thyroid gland in front of their soft palate, make a jump forward for the enemy's front line or some other objective. The tanks duck, wallow along, raising all the hell they can on a goat-getting drive on the enemy and a sort of big-brother help to their own. Every gun within a radius of about twelve miles is going it for all their crews can shove into them, firing usually a mixed gas and shrapnel barrage and shell showers. High-explosive shells about three feet long and nine inches across are being sent up by the trench mortars. The electric tubes buried in the ground out in No Man's Land are sort of foaming at the mouth with large gas cylinders. The canisters of boiling oil, all ablaze, are sailing over, often turning a complete flip flop in the air and landing short. The large railroad naval guns from back about seventeen miles are switching over the great delayed-action shells that go down about twelve feet below the early breakfast dishes and just seems to give everything a nice scrambled-egg turnover so that the gas can leak in. The Vickers, Lewis and Browning guns are raining over bullets, like invisible snowflakes. All this ought to kill everybody, yet, just to make it sure, over all is sent the rolling barrage, that sweeps north and south, another one going east and west, over the whole area out front. All crossroads and known machine and artillery positions are being shelled by other newly-placed field guns. During all this, the aforementioned feeling of monotony passes away, all chronic rigid-knee conditions respond to suggestions, and suddenly it all stops.

Shades of all that is great in war! How easy it is to take a position behind a zero hour, and how hard it is to hold one after it has been taken! You see, when you try to hold a position, the enemy sets his own zero hour and hands you back all these little engagement presents you sent him.

The Big Bertha seemed a military frost. I saw the effects of the shell that went through the hospital in Paris and they summed up as follows: Two mothers killed, one baby killed and another wounded, a hole two by three in a wall and a few pieces of plaster knocked off and a clock damaged—in all, about \$300 damages in property. The report is that it cost the Heinies about \$6,000 to fire one shell. The Big Bertha is yet a secret, as no record of it has been found. The so-called gun emplacement is only its probable position, as the German Army, to date, has refused to discuss the Bertha affair. It is most probably a modified Austrian scoda.

The worst aspect of the war-worn land to be was that it was houseless, lightless, silent and with only a few army stragglers knocking about on serious duty. The usual boisterousness of field campaigning was absent. Possibly, in the younger armies, this may not have been true. Even the American troops I saw in the line in Flanders seemed to have already acquired this general look of seriousness. The only flag I ever saw out front was over an engineer's camp one day, but the next day it was not there, for very good reasons.

The weather out front was always misty, rainy, just going to rain, and always sunless. If the sun ever shone, we seldom had time to look at it before it got mixed up in a rain squall.

We were always on the move—never long enough anywhere to wipe our shoes twice on the same mud-pile. From the bases to within fifteen miles of the front trenchheads we always traveled in the usual railroad peace-time coaches. No one ever knew where we were going. No guides ever came with us, yet none of us were ever lucky enough to get lost. We were given three days' rations, that we promptly either ate within the first three hours out or threw to the frog kiddies that lined the railroad yelling, "Bully-bief!"

The next eight-mile jump was made in the now famous Cheveaux, 8; Hommes, 40, and cooties, 1,000, as the boys usually added, in chalk. Forward from this we tramped it, hopped a truck or just sat it out and awaited events that we hoped would take their time in coming. We now began to hear the boom of the heavy guns, could see the observation balloons, ram-like in the skies, and far off could see some sky mosquito having it out with the archies, and we already felt the spirit of *the real thing*.

As soon as we found out the unit we were assigned to we at once exclaimed: "Oh, yes, they have the best reputation out front, in the whole army and are famous for their spirit and dash." We at once felt sorry (out loud) that the rest of the army could never hope to come up to them in organization and swank. No one in our army ever knew what these terms meant, any more than any one in the A. E. F. ever knew what "army efficiency" meant, but it sounded well, was a good term to praise with and always made the other fellow mad, and, after all, that was the main thing. You see, it was a fact that the British, the French, the Italians, the Australians, the Belgians and the A. E. F. were always the best, if you only would not question what they said of themselves.

General Pershing, with his ability to keep in touch with his whole army, General Haig, Sir Julian Byng, Smith Dorrian, Neville and Commander Foch seemed to be the idols of the front-line men, with the name and fame of Teddy always a best first. Many of the other men had great names back, yet these seemed the idols of the front. Von Hindenburg was no slouch, and whatever it takes to make a soldier sort of dry grin, old Mossback surely had it. Ludendorf never seemed to impress us out front, and the Crown Prince was always referred to as a "dug." Korniloff, the Russian, must have been a sort of Morgan raider—at least, the Germans we took prisoner referred to him frequently as "a bad actor" for them.

The front-line men usually looked on the war as a separation amongst nations, not a divorce. The "stern look" and the "Hymn of Hate" were never much in evidence—just a sort kill-and-be-killed air; that was all. Whatever bitterness there was, was short-lived, and more talked about than felt. The great question was: How long? Every one was sure that, sooner or later, the enemies of France, with her artillery, England, with her wealth of naval position, and the U. S. A., with its untapped resources, must be conquered; yet, just how long it was going to take to undo European secret diplomacy no one could even hazard a guess. War in Europe is not a simple growth; it is a malignant condition, that recurs after extirpation.

The Russian situation and the Russian soldiery are both badly misunderstood by outsiders. From the many German prisoners we spoke to, and the other Allied soldiers we attempted to glean some data from, we drew the following information, that seemed

fact: At the outbreak of the war the Russians were given about one hundred thousand rounds of cartridges and told to win the war with them and not to expect any more. The Russian soldier valued his ammunition so highly that he usually sent it home as souvenirs and fought with his bare bayonet. It seemed a fact that they took the great fortress of Cracow with the bayonet. Siberia they report as warmer than Galicia, and the Masurian Lake district as worse than hell. Don't be fooled by reports; the Russian soldier, if properly armed, can give a good account of himself, and he has numbers.

I never saw a soldier who had seen "heaps of dead piled high," yet I have often seen the landscape sort of pocked and blistered with dead, much as a pasture is often seen mussed up with sleeping cattle. It is curious how often the dead lie face down, with arms thrown out. A soldier dead out front always looked thoroughly dead to me, and dead for good and all. A civilian, after taking advantage of the undertaker's art, often looks as if things were not going right he might come back, but not the battle-field dead, if given time to ripen. They lie around, all cramped up, and yet sprawled about; they sink into the ground's natural irregularities; have dull, fishy, wide-open eyes; always a grayish exudate is over all of their mouth; their hair is soiled and mussed up; the flesh about their neck falls away from their coat collar-band; their hands always seem to be trying to grasp something, and they always looked abandoned and friendless, just as if no one took a real personal interest in them. I suppose we expected that "drumbeat-in-the-dead-of-night-business" and did not get it. After we, or the shells, buried them they never seemed contented, and were always sticking up something into the air, like some part had been forgotten to be turned right. A head, or a hand, or a foot, or a boot, or a coat would always crop out or bubble up, and about like a bed full of little children, keeps worming around and won't stay put, but needs care all the time. I suppose they felt the responsibility of dying without some superior officer giving them orders to die. There were a few who seemed jolly well happy as dead; for a long time some hung dangling on the wires east of Bienville. One continued to read his paper night and day, through sun and rain, on the Somme near High Wood, and under Monchy le Preux the ever-famous card game went merrily on in the gassed dugout and left us all anxious to hear that the ten of hearts had fallen from the

skeleton's bony hand. Often the dead are not finished fighting for their fatherland. One dead soldier's head used to cause the night wagons to bump over its skull, and Heinie, hearing the noise, would merrily send over a few belts of machine-gun bullets. We never meant to leave this industrious dead fellow lying around so long, but he got so infernally jammed around in the landscape that nothing could pry him out without so far disorganizing his anatomy that he would have been of no use to himself or friends as a piece of identity. You see, if you have to scramble a corpse together, it is better to just add his name to some cross and let it go at that.

I believe the worst hell of the front took place on the Butte de Warincourt, south of the Albert-Baupaume road, in the valley of the Somme. Here, everything that one hopes never shall happen to him, just kind of double-decked itself on and into the flower of Europe's best. This was the world's last fight of its volunteers as an army, and it was a fitting finish.

I took a good deal of interest in the manner by which the Germans destroyed the French farms. Whether it was just war or not, it was surely a thorough job. First the sewers were opened up into the cellars of the houses; all equipment of the home was next broken up and twisted around; the floors were blown in, so that one corner fell into the cellar and jammed things; a couple of dead animals were now dropped down any channel of the house; the walls were covered with filth and knocked in; the windows and doors were smashed and the rafters cut away and all the roof allowed to cave in. The mass was set on fire and allowed to burn just enough, yet not enough to clear the mass away. After the fire, the children's toys and other belongings and many private things of the women folks of the house were placed around where they could attract attention. Letters of a scandal-spreading nature were placed in the family trunks. We occasionally read these letters, and they were usually works of art in their line. Military notices, apparently coming from the district commander, were posted around, and these were always calculated to cause lasting disgrace on the community. The trees and all plants and flowers were destroyed completely. The garden walls were all torn down and great care taken to shift known registered surveyors' markings. Now, the fields were all planted with weeds and harmful grasses; furrows and trenches dug, so that the top soil would wash off; all wells and water supplies filled with filth and poisoned; the

roads blown up at crossings and notices left that if any one returning wished to know where the inhabitants of the village were they would find them in some notorious district of Paris. Before leaving, the village cemetery was always visited and the tombs ransacked, all marble slabs taken down and the owners' names cut off and the name of some Heinie dead placed there. Tombs were never closed, once opened, and frequently the dead were left hanging half in and half out of the tomb. How in the world could civilization even have classed the real Prussian as the superman, except superman in filthy, monkey tricks! I have no quarrel, nor has civilization, with the pure German, but the Prussian was, is, and always shall be just what he glories in being—a foul, loud-mouthed braggart, without love of country, of home, of wife or honor.

Just what it was that ended the war, the men out front could never hazard a guess. Very few of them thought it a military defeat. As far as we could learn, the factors that contributed, from the front man's point of view, were:

1. Most of the men out front wanted to go back and have a look at the Bolshevik movement at close quarters. It was something they felt like they would like to try once.

2. The army wanted a few months' rest as a whole. It was not that any one had lost his *morale*—they just had been ordered around so much that they had become educated up to the knowledge that it is easier to tell the other fellow to go to hell than it is to sit down and let him send you there.

3. Large expenditures of funds was getting to be dangerous.

4. The casualties were growing without any important objective having been obtained. It may be news to you all to tell you that throughout the war, on all sides, a great campaign was never successful in having obtained its full objective. All staffs seemed to have miscalculated the purchase price of the objectives, in time and casualties.

5. The Russian situation was ripe for Prussia to pick, if Prussia could succeed in disappearing as an enemy and appear as a down-trodden sister community of Russia, suing as a democratic nation, asking for protection of the Fatherland.

6. The great gamble, that discord may break out in the Allies' ranks after the armistice.

7. The active opposition of the Czecho-Slovak nations to the Germanic aims was the most important menace to the Prussian

arms. Germany could no longer sharply define her Central Allies from her enemies quickly enough to enable her diplomacy to work in secret. The Prussian wants the Czecho-Slovacs back, as all of them are soldiers of the field, care nothing for S. O. S. work, and usually fight without any thought of surrendering. Marsark is probably as shrewd a diplomat as any in Europe to-day.

8. The roadways of Western Russia badly needed repairs, if Prussia intended to use them in the near future.

9. Prussia, exploiting Russia, could afford to lose a diplomatic crisis, yet could not have stood a crushing military disaster. Germany has lost less by the armistice than the Allies could have taken from her by arms.

10. The Masurian Lake regions, as a terrain for defensive warfare, shall loom large on the diplomatic horizon of Europe.

11. Germany's army was badly placed for the winter.

12. The last, and yet the least of all, Germany was growing ashamed of her position in the civilized world, and she dared not face the U. S. A. in the field in the campaign of 1919. The *morale* of her border towns was fast crumbling under her continued air raids.

One can hardly imagine the numerous types of races one could come across within cannon-shot of each other. All of them had their own peculiarities. The American held his own with all of them, and the Scotch Highlander wore his cloth always at a fashionable height.

The Indian contingent chanted and powwowed along at their work to keep up their courage.

The Chinese mouched along in silence, interspersed with a great yang-yanging. Their "Ouchi-ke-Moi" sounded like a bunch of pollices.

The Damien Islanders never seemed to speak, but just worked.

The Cingalese looked always about to fly on some magic carpet or about to produce an Aladdin's lamp. Much to my joy, I saw one who looked like Alibaba. It was little trouble to find the forty thieves.

The Turkish prisoners looked so one-sided, without their rugs or harems.

The French were either wholly dirty or meticulously clean.

The German prisoners industriously mended roads, saluted and smoked. A captured Fritz is the tameest thing on earth.

The Irishman smiled, listened to his pipes and drums, and always disagreed with any one's views on the so-called Irish question. The more one learns to respect and love the Irish, the less one finds that an outsider can ever know of the true Irish question. An Irishman is always polite.

The Canadian cusses or plays rummy and looks English.

The Australian-New Zealander (Anzac) holds a broad pair of athletic shoulders back, smokes, has a good time, fights both enemy and ally at his own pleasure, salutes no one, and always is a dangerously good-looking fellow for any young lady to look at. He is the world's tip-top soldier.

The Englishman, if left alone, is the grandest monument to non-interference and non-intrusion, democracy, breeding, refinement, courage and impertinence the earth has ever grown, either wild or in captivity. His innocent superciliousness surely attracts one.

Gas! gas! gas! and more gas! was always the cry out front, whether we were passing it over to Fritz or getting our dose from him. I believe every one was more or less gaseous half of the time without knowing it. Outside of the first attack cloud, gas was always looked on as a joke by every one and was seldom used.

Arsenical gases and immediately-acting phosgene gas were not much used, as they only killed, and so did not hurt the army as a whole very much. Soldiers are about the cheapest thing an army has, if they will only stay either completely well and fit, or die and absolutely get out of the army's way. The most frightful of all the gases was the delayed-action phosgene gas. It had such a depressing effect on the men who saw their comrades die under it. A soldier having been lethally gassed by delayed-action phosgene was apparently a normal man for about five or eight hours, and only then did he begin to show signs of a condition that almost always ended in death and agony. Talk about your nightmares of life! Just stick around about an hour in some rain-soaked trench and have about twenty or thirty comrades and friends die in the agony of gas. I have seen soldiers wearing crosses of honor and bravery just sort of vomit their insides out from the overwhelming agony of just standing by and doing nothing. As one soldier said, "You are entitled to look gray all the rest of your life just from the memory of it all." Often we would pass down a long line of wounded and find nobody dying; pass back and find, say, ten dying; continue around the wounded until finally all would be dead

or dying, when we had to move off. Of course, the communiques tell you a lot to do for gassed cases, just as medical conventions tell you what to do in the last stages of tuberculosis and malignancy, yet, tell me, has anybody ever performed a well-analyzed miracle?

When mustard gas was first fired at us we thought it was bee-stings. Mustard, like phosgene, is a little too fatal, unless used in slight concentration. For sticking around like a small brother, in a *tête à tête*, it is a wonder. If it had more morbidity and less mortality it would be just right. Sneeze gas is the most dangerous gas to guard against, as the soldier always begins to joke and laugh at it and will not put on their masks, and so, when mustard comes over, they cannot use their masks, but sneeze them off as often as they are put on.

Most of the so-called recoveries from really lethal or near-lethal doses of gas is a recovery from carbon monoxid and cordite gas poison. Towards the end of things over 60 per cent of all shelling was done with gas of some kind or other, mostly mixed. Gas and machine guns will be the most important defense used in wars and economic strikes. We shall live to see a crowd of strikers treated to a dose of tear gas, unless I miss my guess.

The dramatic never seems to appeal to or amuse the real soldier of the front line. His psychology never seems to contain a place for flag-waving or patriotic songs. If forced by circumstances to sing them, he would promptly add something of his own making. As an example, I have often heard them start out to sing "God Save Our King," and then add "My blooming 'ed." I wonder if the real musician can explain why such a jazz poem as the following will cheer him up and make him roar with laughter just before some dangerous errand is undertaken. Imagine being cheered up by the following:

"Did you think as the hearse rolls by  
That sooner or later you and I  
Will be rolling along in the self-same hack  
And we won't be thinking of coming back?"

"The maggots and worms shall cover your skins,  
And slowly they'll crawl all over our chins,  
And we'll lose most of our fingers and all of our toes  
And our great, brainy brains shall run out of our nose.  
There, as friendly as friends, as they crowd all around,  
And as far as they can they'll go down, down,  
And they'll invite their friends and their friends' friends, too,  
And you'll only be bones when they're done with you."

And then they all roar in laughter.

The greatest comfort to a soldier is when he can drawl out the inspiring song, "Oh, My! I Don't Wanny Die!" He gets in a hopeless grouch while singing "Pack Up Your Troubles in Your Old Kit Bag." He thinks of home and children best while droning the general favorite, "Hello! Hello! Who is Your Lady Friend?" He whistles "Tipperary" because he thinks it makes him look like a Mons veteran, and it's hard to whistle it right unless you have heard a veteran to whistle it on the march.

Amongst the masterpieces of the world should go down the old favorite, "It's a Long, Long Trail." Sung in retreat and triumph, on the road and in the trenches, by all the weary men forward and by all the fresh young recruits as they were sent forward, our only uncensored expression of the true state of affairs and our great comforter, this song shall live as long as the memory of this war shall last to any one.

I can only in part judge the havoc the influenza played back home in America, and you already know of its visit to the British, French and American armies. I witnessed the havoc it played with the German armies in the Somme swamp. With all men and guns placed for the attack on the Montdidier-Amiens railhead and associated railroads, the "flu" hit the Germans so hard within four days that the Germans deserted in dozens, thinking it some form of Edison gas. From one observation post north of Albert we saw them carry over one hundred stretchers out of the line in seventy-two hours. You may judge the total by that. During that period I roughly guess that over two hundred thousand must have gone down with it in their army alone.

The usages of civilization and the passing mould of public opinion must ever be the seasoning of all narratives, no matter how justly and conscientiously a chronicler may aim to relate. If truth and memory must at times go slightly deeper into glossaries, let such facts to be told only around the circle of those who were there. Don't let a few petty truths make harder the roadway over which historians must lead the world to universal brotherhood and peace. I served as comrade to each and every ally and branch of the service. In many a rain-soaked trench, by roadside, in shattered farmsteads and in luxurious palaces I have stood by the side of the fit, the wounded, the sick, the dying and the dead. Always amidst these scenes the large percentage of men from New Orleans struck me

as out of proportion to her small 400,000 of population to the balance of the world's many millions. The sons of New Orleans plodded over the long, long trail from Mons to the Marne with the British Empire; they died at the heart-breaking fight near Loos; they rode with the Horse Guards at the taking of Neville, Vittel and Monchy-le-Preux and all through the villages of the Somme, the Aisne and the Lys; they shouted, with the French, "*Ne Passera Pas*" at Verdun long, long before even the American flag had crossed the ocean as ally. When at last the A. E. F. did send a vanguard, one-third of their numbers were men from our glorious city. The achievements of the A. E. F. at Chateau Thierry, St. Mihiel and the Argonne forest was possible only because individual infantrymen, trench mortars, machine-gun operators and New Orleans artillerymen attached to regular battalions and crews fought and died there. Don't let any bare statement of any State in the Union or nation out of the Union distort facts. Ask for the official record of every man in those fights, and New Orleans shall come into her own.

For the dead and living soldier and sailor, historians and a grateful nation will ever have a lasting memory and an honored place. For the fountains from which all of our energies, enthusiasm, spirit and determination ever flowed; for the clear-eyed, clear-brained, yet tortured souls of the world's womanhood; for the names of those "whose influence in the war was paramount," may a just and analytical record show the names of American womanhood atop of all the rest.

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## BRONCHO-PNEUMONIA FOLLOWING MEASLES.\*

By SIDNEY F. BRAUD, A. B., M. D., New Orleans.

Quite a few articles have been written within the past two years on the complications of measles, particularly the broncho-pneumonia, with the *Streptococcus hemolyticus*. Drs. Cole and MacCallum made an extensive report on the work conducted by them in the wards of the Base Hospital, Fort Sam Houston, Texas; Drs. Iron and Marine have reported the rôle played by the *Streptococcus hemolyticus* in the measles cases occurring at Camp Custer, Mich.; Dr. Logan Clendining reported reinfection with *Streptococcus*

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\*Read at meeting of Orleans Parish Medical Society, April 14, 1919. [Received for publication May 1, 1919.—Eds.]

*hemolyticus* in lobar pneumonia, measles and scarlet fever. All reports are very elaborate and represent the existing conditions prevailing in these two army camps in the latter part of 1917 and the early part of 1918.

In the history of medicine there are recorded numerous epidemics of pneumonia, beginning with the early part of the sixteenth century. They spread over Italy, Spain, France, Germany and other countries, always involving great numbers of people, with a very high mortality amongst those affected. It is difficult to recognize with certainty the types of pneumonias in these early epidemics, but the descriptions are so emphatic as to the frequent existence of empyema that it suggests the streptococcal rather than the pneumococcal or influenzal form of infection.

In America similar outbreaks are recorded from the eighteenth century, and during the War of 1812 there was a great epidemic, which spread amongst the troops in northern New York, later amongst the civilians, and finally spread even to the Southern States. The descriptions of the clinical symptoms and post-mortem examinations leads one to believe that this was an affection which closely resembles the one due to the *Streptococcus hemolyticus*.

During the Civil War, measles was extremely prevalent and was complicated by an affection, pulmonary in nature, which was described as a broncho-pneumonia and associated with the frequent occurrence of empyema. Undoubtedly this mortality was high, as we find in the report of Surgeon H. Williams, who had supervision of the general hospitals of the Potomac and Northern Virginia, reporting for a period of fifteen months, 1,996 cases of measles, with 102 deaths, his monthly report for the month of June, 1862, showing 593 cases, with 36 deaths. His mortality rate was high. Measles for fifteen months, 5.1 per cent, and for June, 1862, 6 per cent. He makes no mention of the number of pneumonias complicating measles, but certainly, judging from this mortality, pneumonia must have been a frequent complication. In this report of the general hospitals at Charlottesville for twenty-six months we find 1,060 cases, with only fifteen deaths; mortality 1.4 per cent. This difference in mortality proves quite conclusively that the former hospitals were dealing with a very virulent secondary invader. The same conditions existed during the past period of mobilization in the home camps, the Southern camps being hit the

hardest. Dr. MacCullum reports, in one of his papers, as having studied three specimens of lungs taken from pneumonia cases which are at present in the Army Medical Museum in Washington. They had been preserved in alcohol for fifty-four years. They showed plainly the gross appearance which had become familiar in the study of streptococcal broncho-pneumonia. In microscopic section they presented lesions identical with those of the cases in the past epidemic of measles pneumonia.

In the hospital in which I was stationed there were admitted between December 1, 1917, and March 1, 1918, 716 cases of measles, with the following complications:

Otitis media, acute, suppurative.....	150	20 %
Broncho-pneumonia. ....	89	12.5 %
Septic arthritis, non-suppurative. ....	12	1.5 %
Septic arthritis, suppurative. ....	1	0.1 %
Meningitis, streptococcal. ....	2	0.25%
General sepsis. ....	3	0.4 %

I do not know the exact number developing peri-tonsillar abscesses, mastoiditis and sinusitis. Of the broncho-pneumonia, forty-two died, giving a mortality of 47 per cent. Of the total number of measles cases, as well as I can recall, forty-four died, giving us a percentage of 6.1. I wish to call attention here to the fact that the mortality of our hospital was practically the same as the mortality mentioned in one of the hospitals during the Civil War. In every case of pneumonia, the *Streptococcus hemolyticus* was isolated either in the sputum or lung tissue. Eighty per cent of the pneumonia cases developed empyemata. This is indeed quite a contrast to the post-influenzal pneumonias, in whom but a very few empyemata were found. In one case I found a pneumo-thorax. It might be well to mention that this chest was never aspirated, relieving all doubt as to the pneumo-thorax being the result of the chest puncture.

The pathology of this pneumonia has been described by Dr. MacCullum as taking two forms. It is either essentially a broncho-pneumonia, in which extensive process of organization and induration are especially developed, a form which we call interstitial broncho-pneumonia, or it is a lobular exudate inflammation, in which no such evidence of any powers of resistance are to be found. In both cases it is accompanied by empyema and by a few other changes, especially in the upper respiratory tract.

The symptomatology may best be given by citing a case:

**M. S.**, age twenty years, entered the hospital on January 23, 1918. Symptoms: Sore throat, photophobia, fever, chilliness; cough, with expectoration.

**Physical Examination:** Conjunctivitis; red pharynx; red crescentic papular eruption on the face and body. Diagnosis: Measles.

On January 28, five days after admission to hospital, he had a chill, followed by high temperature. Cough severe, with profuse expectoration. Sputum thin, muco-purulent, greenish gray, and not streaked with blood. He was very hoarse and faintly cyanotic. Urine, a slight trace of albumen, with hyaline casts.

February 3.—Cyanosis more discernible; no flush to the face; eyes are clear; patient very apprehensive; rash entirely disappeared.

**Physical Examination:** Heart-sounds muffled; no murmurs heard. Right lung, anterior: No dullness; a few scattered areas of crepitation; inspiration prolonged and high-pitched. Left lung, anterior: Resonance good; many large, coarse râles heard. Back not examined this date. His temperature presented a typical septic curve. I have with me a few temperature charts which may prove of some interest. His total white on this date was 19,000. The urine presented the same findings. From this day he grew progressively worse; cyanosis deepened, becoming purplish the day before he died. The areas of broncho-pneumonia became larger and more numerous. Death occurred February 8, 1918. Autopsy revealed a bilateral broncho-pneumonia confluent on left side, with fibrino-purulent pleuritis. In the left lung the lobules were very distinctly marked, and in the upper lobe on the left side the patches of consolidation were confluent, but distinctly composed of grayish patches clustered about the bronchi. Culture of a piece of lung tissue and culture from the pleural exudate showed hemolytic streptococci.

The treatment followed in all the cases was as follows: Standing orders for all new pneumonia cases admitted were as follows:

1. Tincture of digitalis, minims 15 for a period of seventy-two hours, given every four hours.
2. Push liquids, lemonade, orangeade, grape juice and milk and water.
3. Sodium citrate, grains 15 every three hours.
4. Low cleansing enema daily if no bowel movement.
5. Temperature, 104° or above, tepid sponge bath.
6. For insomnia, restlessness, severe cough, one-fourth grain morphin sulphate with  $\frac{1}{150}$  of atropin sulphate.

All throats were cultured upon admission to ward, and sputum for type determination.

No set rules can be given for treatment, but these were issued as a guide in treatment. Tincture of digitalis had to be watched very carefully. In some cases, after 15-minim doses for a

period of seventy-two hours, no evidence of digitalization, such as we see by slowing of pulse, improvement in general condition, in breathing, in cyanosis, was observed, and hence the digitalis was then given in larger doses. It was not very long before we began our patients on 25-minim doses instead.

In a series of twenty cases I did not digitalize at all, and I made use of caffein citrate in three-grain doses given every four hours. I do not believe that the results were as good. It is a good point to remember that caffein is contraindicated in all delirious cases. I did not make use of strychnin and camphorated oil.

In a series of ten cases I made use of anti-streptococcus serum. After a careful desensitization of the patient I gave 50 c. c. of serum, with 50 c. c. of normal saline solution. This was repeated in from eighteen to twenty-four hours. The series was entirely too small from which to draw any conclusions. It is my belief, however, that some were materially benefited by the serum. Drs. Cummings and Spruitt used the serum rather extensively, and just what their results have been I am not in a position to state.

In regard to the empyemata complicating this condition, much has to be worked out. In the beginning of the epidemic it was customary to drain all fluids from the chest which contained either the pneumococcus or the streptococcus. This procedure met with failure, as most of the patients died within twenty-four hours after a rib resection. Later in the epidemic, however, we were permitted to aspirate these chests every two or three days until the general condition improved. Pus formed in almost all the cases in from one to three weeks. The end results were a good deal more gratifying.

#### DISCUSSION OF DR. S. F. BRAUD'S PAPER.

**Dr. Guthrie:** It is a matter of great interest to us who have had a chance to see pneumonia while in service to hear the experience of other men. Most of the data we collected, and looked forward to the time when we should be able to be together and compare statistics that we collected. We had at Camp Beauregard, between September, 1917 and May, 1918, during which time I was in charge, 652 cases of pneumonia, with a gross death rate of 17 per cent, including cases of empyema. We had only fifty-seven cases of empyema, and, of that fifty-seven, 21 per cent died. The death rate of the cases which we diagnosed as lobar pneumonia, some of these we typed, and those we typed out after we got our laboratory going, was only 10 per cent on lobar pneumonia. The death rate for all cases of pneumonia was 17 per cent.

The first of the serious outbreaks was measles. This occurred in October, just after the hospital was opened. The weather was mild; the cases were treated outdoor entirely, on the wide porch. The first hundred cases of pneumonia were in satisfactory shape, practically out of the woods. Some of us, including the chief of the medical service, myself, were inclined to believe that a remarkably low death rate would hold good for the series and with pneumonia. I had the cases out in the open air all the time. Screens were used to protect the eyes of the patient, and great stress was laid on the matter of food. It has been my experience that pneumonia cases show specific tissue waste. This is somewhat similar to what Coleman and Dubois showed exists in typhoid. I am satisfied the time will come when we shall be able to put some pneumonia cases in a metabolism chamber and demonstrate this tissue waste. We had the hardest kind of work in order to get the dietary that was necessary for nourishing these cases. The cases continued to do well until we got in a batch of enlisted men from Camp Pike. They came and brought with them *Streptococcus hemolyticus*, and from this time we began to have the most virulent type of mixed infection. It was very disheartening at first, but in the end we were able to make a pretty fair showing, which you can see from the figures that I gave you, with combined death rate of 17 per cent. This compares very favorably with the statistics from the camps. The greatest death rate occurred in the cases of broncho-pneumonia and measles. I was struck, on the other side, in France, by the similarity of relationship between broncho-pneumonia and complicating measles as I saw it in the camps here. We saw cases in the Evacuation Hospital at Villers-Daucourt; we made cultures on most of the cases, and I thought, from the way the cases behaved in the clinics, that we had a *Streptococcus hemolyticus* infection. The clinical course of the disease was the same as I had seen here—perhaps a little bit higher virulence than those cases I had seen on this side.

I believe that army digitalis is very much too weak to be given in 15-minim doses. I was in the habit of giving the army tincture in teaspoonful doses. I was quite a nuisance around the supply depots, because I asked for an amount exceeding my allowance of digitalis for the supply to the hospital.

I was very much interested in learning that my friend and colleague, Dr. Halsey, who has been, up to the time of his experience in France, a staunch advocate of the use of large doses of digitalis, had experienced a change of heart in this regard. I think, as far as therapeutics is concerned, the things that gave us the best results were water internally and repeated application of wet sheets. The patient laid in a sheet of 85 degrees and covered with blankets for nervousness. You will find they are not only comfortable, but soothed in wet sheets. It does away with the necessity of using bromides. This is applicable even in the subnormal conditions after the febrile stage is passed.

A word about empyema. The early diagnosis of empyema is tremendously important as to prognosis. I have about come to the conclusion that Dr. Braud gave you. If we have a clear fluid, even if that fluid contains microorganisms, it is well to wait on the operation. If the pus is distinctly creamy, and has come to that stage when we are aspirating, we are justified in advising resection as soon as possible. We frequently aspirated, and sometimes with the patient in front of the

fluoroscope. The complete coöperation with the surgical staff and early diagnosis make for a low death rate.

**Dr. Braud** (closing the discussion): I was muchly interested in the wet-sheet method used by Dr. Guthrie in the controlling of the nervous phenomena and extreme restlessness manifested by these patients, especially when accompanied by a marked drop in temperature. I hated to see this condition, and, of course, as most men did, I used the bromides.

As far as the chest signs in empyema are concerned, increased voice sounds, as mentioned by Dr. Guthrie, were often found, with a chest full of fluid. Recently I read an explanation, offered by Norris and Landis in their new book, which reads as follows: "There is an increase in vocal fremitus when the lung, instead of being collapsed and air-bearing, is actually solid, because there is comparatively little sound lost at the lung-fluid junction when the lung is solid, just the reverse of what occurs when the lung contains air."

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## CORRESPONDENCE

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TREASURY DEPARTMENT—BUREAU OF THE PUBLIC HEALTH  
SERVICE, DIVISION OF VENEREAL DISEASES.

WASHINGTON, May 5, 1919.

*Editor, NEW ORLEANS MEDICAL AND SURGICAL JOURNAL:*

In the May number of the *NEW ORLEANS MEDICAL AND SURGICAL JOURNAL*, on page 454, there is an article entitled "Some Psychology of Syphilis."

In this article reference is made to a circular of instructions issued by the New Orleans City Board of Health, and which "the physician must hand to the patient." The writer should be glad to see a copy of this circular of instructions. There is attached hereto the confidential instructions which the Public Health Service recommends that physicians give to their patients. It is not believed that the instructions contained in the circular attached hereto are of such a nature as to have any tendency to create the syphilophobia.

The editorial referred to closes with these words: "The end result may be that the Board of Health is on the way to getting rid of a bad law by enforcing it." The bureau trusts that you do not regard the present nation-wide movement for control of venereal diseases as being undesirable.

By direction of the Surgeon General.

Respectfully,

C. C. PIERCE,  
*Assistant Surgeon General.*

NEW ORLEANS, May 13, 1919.

DR. C. C. PIERCE, *Assistant Surgeon General, U. S. P. H. S.,  
Washington, D. C.*

DEAR SIR—Your communication to one of the editors of the *NEW ORLEANS MEDICAL AND SURGICAL JOURNAL*, sent by direction of the Surgeon General, seems to merit more attention than the ordinary routine of the editorial office would give it. We are indeed gratified that our editorial should have attracted the official notice of such authority. At the same time we are somewhat surprised that the circular which invited our criticism has not reached you through the local Health Board direct, as we have understood that representatives of your service were coöperating with the Health Boards of this State.

We are sure that you will find much to ponder when you peruse the circular, which has been framed without apparent regard for either the physical state of the victim of venereal disease or for the law which has given the health boards authority to act in the control of venereal diseases of the State. The concluding paragraph of your communication compels us to conclude that your perusal of our *JOURNAL* is only occasional, else you would have recalled our editorial in the issue of March, 1919, wherein we express our views regarding the movement for the control of venereal diseases.

Our allusion was made to the law as promulgated in the regulations contained in the circular of the Board of Health, to some of the provisions of which we have adverted with just criticism, as it is thoroughly subsversive of ethical practice, and, moreover, it goes so far beyond the law of this State as to make it actually meretricious.

We are ready and willing to further any movement which is conceived in the right spirit, but we believe that this question is too momentous to be discounted by misconception of its intentions. We would like to emphasize our belief that venereal disease will not be obliterated so long as there are men and women and so long as their appetites exist, but moral cant will not even ameliorate the evils attached to such indulgences.

Education, hospitalization and prophylaxis are the sound bases for active attack on the question. The report of venereal diseases is desirable, and may obtain through voluntary coöperation of all concerned, but, in the South at least, the widespread prevalence of

unrecognized and neglected venereal diseases in the negro will make reporting of doubtful service, while the penalties attached to the failure to report venereal diseases under the present complicated laws in effect will always put a premium upon dishonesty.

One of us has repeatedly (since 1899, when contributions were made to the Brussels Conference for the Control of Prostitution and Venereal Diseases) ventilated the obligations of the public and of the health authorities in the control of these evils, and we believe that a better acquaintance with our attitude in the past and our position in the present will put a complete disclaimer to your implied charge that we "do not regard the present nation-wide movement for the control of venereal diseases as being undesirable."

We are heartily in accord with the movement; we only question some of the methods, and in criticizing these we recognize our rights as citizens, and particularly as medical men, voicing what we believe to be the opinions of our constituents. Respectfully,

CHASSAIGNAC AND DYER, *Editors.*

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UNITED STATES PUBLIC HEALTH SERVICE,  
WASHINGTON, D. C.

*Editors* NEW ORLEANS MEDICAL AND SURGICAL JOURNAL:

DEAR SIRs—It appears that there is a lamentable want of care on the part of many physicians who administer arsphenamine, as to the concentration of the drug used and the time required for administration.

The Hygienic Laboratory receives many complaints in regard to untoward results from the administration of arsphenamine made by various American producers. When careful investigation is made it is almost invariably found that the drug has been used in a solution that is too concentrated, and that it has been administered too rapidly. We have reports of a dose of 0.4 gm. being given in a volume of as little as 25 c. c. and injected within thirty seconds. Such practice is abuse, not use, of a powerful therapeutic agent.

If, in addition to the usual precautions as to the use of perfect ampoules and neutralization, physicians would give the drug in concentration of not more than 0.1 gm. to 30 c. c. of fluid and allow a minimum of two minutes for the intravenous injection of each 0.1 g. m. of the drug (in 30 c. c. of solution), the number of reactions would be very materially reduced. This would necessitate

from 90 c. c. to 180 c. c. of the solution for the doses usually given and would require from six to twelve minutes for the injection.

Any physician who fails to observe these precautions should be considered as directly responsible for serious results that follow the improper use of the drug.

Hoping you may find space in your JOURNAL for this letter, I am,

Respectfully yours,

G. W. McCoy, *Director.*

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## AMERICAN SOCIETY OF TROPICAL MEDICINE

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### PRELIMINARY PROGRAM.

Dr. Sidney K. Simon, acting secretary of the American Society of Tropical Medicine, announces the preliminary program for the forthcoming meeting at Atlantic City, June 16 and 17, 1919, as follows:

1. The President's Address, "Some Phases of Tropical Medicine in the Recent World Conflict"—Dr. C. C. Bass, New Orleans.
2. "Surgical Treatment of Typhoid Carriers, With Suggestions for the Treatment of Cholera or Dysentery Carriers"—Dr. H. J. Nichols, Washington, D. C.
3. "Tropical Resources and Hygiene"—Dr. D. Rivas, Philadelphia, Penn.
4. "One Phase of the Mosquito Work Connected With Army Camps in 1918"—Dr. Clara S. Ludlow, Washington, D. C.
5. "The After-History of Trypanosomiasis in Africa"—Dr. John L. Todd, Montreal, Canada.
6. "Treatment of Malaria, With Special Reference to the Dose of Quinin, Time and Mode of Administration, and Length of Treatment"—Dr. D. Rivas, Philadelphia, Penn.

### *A Symposium on Yellow Fever.*

7. "Experimental Studies on Yellow Fever"—Dr. Hideyo Noguchi, Rockefeller Institute, New York.
8. "The Clinical Manifestations of Yellow Fever as Observed in Guayaquil in 1918"—Dr. Chas. A. Elliott, Chicago, Ill.
9. "The Mechanism of the Spontaneous Elimination of Yellow Fever from Endemic Centers"—Dr. H. R. Carter, Baltimore, Md.
10. "The Eradication of Yellow Fever in the Tropics"—Dr. J. H. White, Vera Cruz, Mexico.
11. "Algunos observaciones en fiebre amarilla"—Dr. Wenceslao Pareja, Guayaquil, Ecuador.
12. (Title not given)—Dr. Mario J. Labredo, Havana, Cuba.

The meeting will be held in Odd Fellows' Hall, New York Avenue, a short distance from the Boardwalk.

## NEWS AND COMMENT

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**GIFT TO HARVARD MEDICAL SCHOOL.**—An anonymous donation of \$50,000 has been made to the Harvard Medical School for the establishment of the James C. McLooin Fund for Tropical Medicine. The income is to be used for research in preventive medicine.

**A VLADIVOSTOK MEDICAL COLLEGE.**—A circular letter has recently been addressed to "certain American and Canadian men of science" announcing the establishment of a medical faculty in Vladivostok to form the nucleus of a complete university in the near future. As funds are badly needed, the hope of the projected university is help from abroad, especially from the United States, Canada and Japan. Anatomical charts, diagrams, plaster models, instruments for dissection, microscopes, microtomes, microscopical preparations, books, especially in Russian, English, French or German, are asked for on terms of credit, to be paid not earlier than in December, 1920. For further information address Vladivostok Medical College, care of Dr. Konstantine Ovoienke, 66 Svetlanskaya street, Vladivostok, Siberia.

**THE UNITED STATES CIVIL SERVICE COMMISSION** announces an open competitive examination for physician, for men only, on June 18, 1919, in the principal cities throughout the country, to fill a vacancy in the Panama Canal service, at an entrance salary of \$150. Promotion is made to \$200, \$225, \$250, \$275 and \$300, and to higher rates for special positions. The entrance rate for physicians experienced in care of the insane is \$200 a month. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or to the secretary of the United States Civil Service Board in the city in which he lives, or where such a board exists.

**THE FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY** held its annual meeting in Baltimore, April 24, 25 and 26, 1919, and presented most interesting and profitable programs. The federation is formed by the Physiological Society, the Society of Biological Chemists, the Society for Pharmacology and Experimental Therapeutics and the Society for Experimental Pathology. The sessions were held at the Johns Hopkins University Medical School.

**MALARIA IN THE UNITED STATES.**—Over 7,000,000 in the United States are infected with malaria, according to the estimation of the United States Public Health Service. Estimates prepared by the service indicates that in the South the ravages of typhoid fever, tuberculosis, hookworm and pellagra all together are not as serious as from malaria.

**NATIONAL ASSOCIATION FOR THE STUDY AND EDUCATION OF EXCEPTIONAL CHILDREN.**—The annual business meeting of this association was held at the Hotel McAlpin, New York, on April 30, 1919. In conjunction therewith a conservation conference on child resources was held, in which leading physicians, psychologists, educators and social service workers discussed problems relating to child welfare.

**STATUS OF THE AMERICAN RED CROSS.**—On March 1, 1919, the American Red Cross War Council issued a bulletin stating that in the previous twenty-one months the American people had given in cash and supplies to the American Red Cross more than \$400,000,000. The American Red Cross entered the war with 500,000 members and at the date of this statement had 17,000,000 full-paid members, besides 9,000,000 junior members. There were 9,000 workers enrolled in France at one time and 6,000 are still required there.

**PHYSICIANS TO MEET IN ATLANTIC CITY IN JUNE.**—Atlantic City will be the scene of a number of annual meetings of noteworthy associations of physicians and surgeons, beginning in June and lasting through the greater part of the month. Among the most prominent are: The American Medical Association, the American Gynecological Society, the Gastro-Enterological Association, the American Society of Tropical Medicine, the American Medical Editors' Association, the American Pediatric Society, and Congress of American Physicians and Surgeons. The headquarters of these meetings will be at the Marlborough-Blenheim and the Chalfonte hotels.

**NATIONAL ASSOCIATION FOR THE STUDY OF EPILEPSY TO MEET.**—The eighteenth annual meeting of this organization will be held at the Craig Colony for Epilepsy, Sonyea, N. Y., June 6-7, 1919, under the presidency of Dr. Wm. T. Shanahan. In ad-

dition to an interesting program, there will be a reorganization of the society to meet the demands of the post-bellum period, and plans will be discussed for a union of the investigators of the epilepsies in allied and neutral countries with those of America.

**BATS TO EXTERMINATE MOSQUITOES.**—The plan to exterminate mosquitoes by erecting bat roosts has again been proposed by Dr. Chas. Campbell, of San Antonio, Texas. Dr. Campbell interested the authorities in Cuba and Florida with his plan, and already at Key West a movement is under way to erect four roosts.

**FEW BLINDED AMERICAN SOLDIERS.**—A statement was made from the office of the Surgeon General of the Army, and published in the *Army and Navy Journal* of November 30, 1918, that probably less than fifty American soldiers have suffered total blindness from wounds received in action.

**VICTOR ELECTRIC CORPORATION WINS SUIT.**—The United States Federal Trade Commission ordered dismissed and discontinued the complaint brought against the Victor Electric Company recently. This suit has given the Victor corporation an opportunity of having the government searchlight turned upon its activities, and the clean bill of health which the corporation has received should be an inspiration to its officers.

**TULANE HOSPITAL UNIT TO BECOME PERMANENT.**—It is proposed that Hospital Unit 24, recently returned from France, remain intact and become a permanent organization, in line with the suggestions made to the Board of Trustees of Tulane University by Surgeon General M. W. Ireland, of the United States Army. The plan of organization is being considered by the officers of the unit, and as soon as the details have been completed communications will be sent to doctors and nurses and the remainder of the personnel.

**JOURNAL OF DENTAL RESEARCH.**—The first issue of this new journal made its appearance in March, 1919. The editorial office is located in the Biochemical Department of Columbia University, College of Physicians and Surgeons, 437 West Fifty-ninth street, New York City.

**AMERICAN ASSOCIATION OF ORIFICIAL SURGEONS.**—The thirty-second annual convention of the American Association of Orifical

Surgeons will be held September 15, 16 and 17, at the Congress Hotel in Chicago. The forenoons will be given to operative demonstrations at the hospital. The program will be complete, with practical addresses, essays and papers by prominent orificialists. The clinics will be interesting, as usual.

THE AMERICAN PUBLIC HEALTH ASSOCIATION MEETING.—This association will hold its next annual meeting in New Orleans, October 6-9, 1919. Preparations are already under way to make this a banner meeting, and coöperation is asked to make it a great success. Dr. Paul J. Gelpi, of New Orleans, is chairman of the publicity committee.

OPHTHALMIC EXAMINATIONS.—The American Board for Ophthalmic Examinations will hold its fifth examination at the Wills Eye Hospital, Philadelphia, June 6 and 7, 1919. This board is composed of representatives of the American Ophthalmological Society, the Section in Ophthalmology of the American Medical Association, and the Academy of Ophthalmology and Otolaryngology. Further information may be had upon request from the secretary, Dr. William H. Wilder, 122 South Michigan avenue, Chicago.

PERSONALS.—Dr. William Engelbach, of St. Louis, Mo., gave a very interesting talk to members of the Orleans Parish Medical Society during the month.

Dr. Will. Mayo visited New Orleans during the early part of May and his large circle of friends here enjoyed his visit immensely.

Among the Louisiana men who have returned since our last list, from service in this country or abroad, are: Drs. E. D. Fenner, Chaillé Jamison, W. T. Patton, H. J. Gondolf, H. L. Kearney, P. T. Talbot, C. P. Holderith, Wm. W. Leake, M. Bradburn, J. Signorelli, John S. Dunn, of New Orleans; Drs. M. Cappel, Alexandria; F. Palmer, Blackburn; L. Z. Kushner, Lake Charles; N. M. Palmer, Leesville; B. A. Norman, Minden; W. R. Abney, Lake Arthur; E. S. Fulton, New Iberia; O. B. Hicks, Shreveport; J. K. Griffith, Slidell.

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## BOOK REVIEWS AND NOTICES

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*All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

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**A Manual of Physiology, with Practical Exercises**, by G. W. Stewart, M. A., M. D. Wm. Wood & Co., New York, 1918.

The new (eighth) edition of this work maintains the high standard of previous editions, which placed it in the front rank of textbooks of physiology for both medical students and practitioners. A feature of previous editions, practical laboratory exercises and descriptions of experimental methods, has been retained. It is a feature which adds much to the value of the work, both as a reference book and as a teaching manual. Much new material has been incorporated. This relates to the blood fats, theories of kidney secretion, the results of optical methods of study of the heart and circulation, the newer features of metabolism as determined by the recently devised micro-methods and colorimetric methods for the investigation of blood and urine, colorimetric studies of blood-flow and the many newer results of the experimental work with the ductless glands. One of the most valuable additions to the book is an appendix, in which sixty-three pages are devoted to an excellently selected bibliography arranged by subjects. A majority of the references are to articles written in English, so that they may be used with facility by all.

W. E. GARREY.

**A Textbook of Physiology for Nurses**, by William Gay Christian, M. D., Professor of Anatomy, Medical College of Virginia. C. V. Mosby & Co., St. Louis, 1918.

The authors preface the work with these words: "The work is an elementary one and has no claim to originality, except in arrangement and treatment."

W. E. G.

**The Ungeared Mind**, by Robert Howland Chase, A. M., M. D. F. A. Davis & Co., Philadelphia.

As the author states in the preface, the book consists of a collection of medical writings. These are related to mental unbalance and to experiences in borderland psychology. The discursive character of the book is to be expected, but the reader is rewarded by many bits of real philosophy and by a varied assortment of apt quotations from those who have observed in like fields. While presented to the medical profession chiefly, there is ample food for profitable reading by the intelligent layman.

DYER.

**Clinical Disorders of the Heart-Beat**, by Thomas Lewis, M. D., F. R. S., F. R. C. P. Fourth edition. Paul B. Hoeber, New York.

"Familiarity with the heart's mechanism in health and disease is a first essential \* \* \*. Those who do not possess this familiarity are incompetent to deal with cardiac patients." These words of the author

are sufficient reason for his effort at demonstrating the manner of acquiring the knowledge necessary. He aims at this by presenting a series of studies, with illustrative diagrams, covering the disorders of the heart-beat, sinus irregularities, heart-block and variations in valvular functions and deficiencies. Each condition is discussed in full detail and in a manner wholly illuminating. This monograph of a little more than 100 pages carries material of large value to the diagnostician who is willing to be guided by the experience of a careful observer. DYER.

**Autobiography of an Androgyne**, by Earl Lind. Edited by Alfred W. Herzog, Ph. B., A. M., M. D. *Medicolegal Journal*, New York.

The editor anticipates criticism by discounting it in submitting that this book is published with the large purpose of obtaining justice and human treatment for homosexualists of congenital types and who are not responsible for their vice. Symonds' *Studies in Greek Psychology* are truly academic when compared with this human document. It is no book for the layman, to whom there must come an extreme disgust at the detail. It is seldom that there is given an opportunity for such a clinical study of perversion. The author throughout assumes that he is a homosexual with feminine attributes, which congenitally compel his license. The perusal of the story shows that he is not sane, but a pervert of unusual type, in whom not only homosexuality is extreme, but, in his varied experiences, there are periods of Sadistic and Masochistic expression, in which the experience of cruelty and abuse only accentuate the furor amoris.

The book, to the judicial mind, pleads for a better study of this class of the insane, with a view to some provision for their relief. Penalty by law at no time has served to stop the evils, and all students of psychopathic individuals must be agreed that the bulk of them are vicious sex lunatics. One phase of the experiences related in this book should be remarked, and that is the development, *pari passu*, of the highest religious fervor, while some of the most vile experiences are in progress. To psychiatrists this is no novel thing—to find religious mania early among a number of insane types. Recondite conditions among the human beings of this day are certain to exist, and it will be some generations hence before the relief can even be projected. DYER.

**Paper Work of the Medical Department of the United States Army**, by Major Ralph W. Webster, M. C., U. S. A. P. Blakiston's Son & Co., Philadelphia.

A volume of over five hundred pages is devoted to what the medical officer should know in the administrative work applied to his position as a medical officer. This will prove interesting reading to those of the Medical Reserve Corps who went through the training camps. It is too late, of course, for the book to have any usefulness among the Reserve Corps now. The experience of so many who went across, that much of the red tape was cut for expediency, would lead us to conjecture that, in another emergency, such volumes will have passed into an academic place. Even at that, the author begins his preface with a general statement that the volume presents only the more important work. As a matter of fact, much of the material in the book is a review of the practices in vogue up to the present time. The detail has been well done and many forms have been reproduced, making the text clear and readily followed. Paper work is the *bête noir* of all medical officers, and if the

compilation of Major Webster will help to control it he will surely earn the gratitude of the future Medical Corps. DYER.

**Practical Medicine Series.** Series 1918. **Skin and Venereal Diseases.**  
 Edited by Oliver S. Ormsby, M. D., and James Herbert Mitchell,  
 M. D. The Year Book Publishers, Chicago.

This volume of the Practical Medicine Series is full of interesting material, presenting a mass of new subjects, many showing exceptional observations of rare skin diseases. Suggestions in newer therapy of skin diseases are given and illustrations are freely used. In the part devoted to venereal diseases there are also many interesting pages. The control of venereal diseases is discussed and liberal space is given to irregular phases of syphilis. DYER.

**Massage and the Original Swedish Movements,** by Karre W. Ostrom,  
 Eighth edition. P. Blakiston's Son & Co., Philadelphia.

With each new edition of this little work we take occasion to commend it to the perusal and study of physicians. Massage and the movements of joints and the body as set forth in this book will afford frequent aid in handling patients, especially true in convalescence. Too little attention is paid to such contributions, which are honestly put forward for the aid of the physician. His neglect of such procedures has certainly favored the development of the several quack cults extant to-day. The application of massage and such movements to particular diseases is set forth briefly at the end of the book. DYER.

**Hygiene for Nurses,** by Nolie Mumey, M. D. C. V. Mosby Company, St. Louis.

Another one of these books, which is well prepared, containing much interesting information, presented in a pleasing manner, but altogether failing to satisfy the title, viz: Hygiene for Nurses. Instead of eugenics, and the discussion of diseases and their causes and symptoms (to which half of the book is devoted), it would have served a better purpose if the personal hygiene of the nurse and her patients were discussed. The book is certainly interesting, and will be to the nurses, but it is misnamed. DYER.

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## PUBLICATIONS RECEIVED

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**W. B. SAUNDERS COMPANY,** Philadelphia and London, 1919.

**The Surgical Clinics of Chicago.** February, 1919. Vol. 3, No. 1.

**Clinical Microscopy and Chemistry,** by F. A. McJunkin, M. A., D. E

**LEA & FEBIGER,** Philadelphia and New York, 1919.

**Human Infection Carriers, Their Significance, Recognition and Management,** by Charles E. Simon, B. A., M. D.

**Elementary Bacteriology and Protozoology.** For the use of nurses, by Herbert Fox, M. D. Third edition, thoroughly revised.

**A Treatise on Orthopedic Surgery,** by Royal Whitman, M. D., M. R. C. S., F. A. C. S. Sixth edition, thoroughly revised.

**A Text-Book of Practical Therapeutics,** by Hobart Amory Hare, M. D., B. Sc. Seventeenth edition, thoroughly revised and largely rewritten.

**Military Surgery of the Ear, Nose and Throat,** by Hanau W. Loeb, M. D.

**WM. WOOD & CO.,** New York, 1919.

**War Surgery of the Face**, by John B. Roberts, A. M., M. D., F. A. C. S.

**A Text-Book of Pathology**, by Francis Delafield, M. D., LL. D., and T. Mitchell Prudden, M. D., LL. D. Eleventh edition, revised by Francis Carter Wood, M. D.

**THE MACMILLAN COMPANY,** New York, 1919.

**The Whole Truth About Alcohol**, by George Elliot Flint. With an introduction by Dr. Abraham Jacobi.

**Tuberculosis of the Lymphatic System**, by Walter Bradford Metcalf, M. D.

**P. BLAKISTON'S SON & CO.,** Philadelphia, 1919.

**Electricity in Medicine**, by George W. Jacoby, M. D., and J. Ralph Jacoby, A. B., M. D.

**GOVERNMENT PRINTING OFFICE,** Washington, D. C.

**United States Naval Medical Bulletin.** Report on Medical and Surgical Developments of the War, by Dr. William Seaman Bainbridge.

**Instruction to Medical Officers in Charge of State Control of Venereal Diseases.** 1918.

**To Promote the Education of Native Illiterates, of Persons Unable to Understand and Use the English Language, and of Other Resident Persons of Foreign Birth.** Hearing before the Committee on Education, House of Representatives.

**Public Health Reports.** Vol. 34, Nos. 10, 11, 12, 13, 14 and 15.

#### **MISCELLANEOUS.**

**La Prothese Fonctionnelle Des Blessés de Guerre.** (Masson et Cie, Editeurs, 120 Boulevard St. Germain, Paris. VL 1919.)

**Special Report of the Attorney General of Porto Rico Concerning the Suppression of Vice and Prostitution in Connection With the Mobilization of the National Army at Camp Las Casas.** February 1, 1919.

**Annual Report of the Directors of the American Telephone and Telegraph Company.** For the year ending December 31, 1918.

**Third Annual Report of the China Medical Board.** January 1, 1917-December 31, 1917.

**Studies in Medicine.** (Published by the University of Iowa, Iowa city, Iowa.)

#### **REPRINTS.**

**Is Influenza Epidemic of Bacterial Origin?** by Albert J. Croft, M. D.

**A Method of Acquiring Cataract Technic**, by Wm. A. Fisher, M. D., and Harvey D. Thornburg, M. D.

**Quelques Observations Sur les Cercaires de la Vallée de Caracas**, by Dr. Juan Iturbe.

**The Differential Leucocytic Count and the Neutrophilic Blood Picture on One Hundred Cases of Malaria**, by P. Gutierrez Igaravidez, M. D.

**Premature Old Age; Hearing and Its Regulation, Especially in Middle Age and Early Senescence; Backache of Tenderness**, by J. Madison Taylor, M. D.

**The Influence of Internal Secretions on the Formation of Bile; Secretin and the Change in the Corpuscle Content of the Blood During Digestion; Secretin: The Rôle of the Thymus Gland in Exophthalmic Goiter**, by Andrew W. Downs, M. D., and Nathan B. Eddy, M. D.

## MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for April, 1919.

CAUSE.	White.	Colored.	Total.
Typhoid Fever .....	3	1	4
Intermittent Fever (Malarial Cachexia) .....	1	1	2
Smallpox .....			
Measles .....			
Scarlet Fever .....	1		1
Whooping Cough .....	1		1
Diphtheria and Croup .....	1		1
Influenza .....	1	3	4
Cholera Nostras .....			
Pyemia and Septicemia .....	1		1
Tuberculosis .....	35	32	67
Cancer .....	28	6	34
Rheumatism and Gout .....	1	3	4
Diabetes .....	3	1	4
Alcoholism .....			
Encephalitis and Meningitis .....	4		4
Locomotor Ataxia .....			
Congestion, Hemorrhage and Softening of Brain .....	15	16	31
Paralysis .....			
Convulsions of Infancy .....			
Other Diseases of Infancy .....	10	4	14
Tetanus .....		2	2
Other Nervous Diseases .....	4	1	5
Heart Diseases .....	55	26	81
Bronchitis .....	1	1	2
Pneumonia and Broncho-Pneumonia .....	23	16	39
Other Respiratory Diseases .....	2	2	4
Ulcer of Stomach .....			
Other Diseases of the Stomach .....	1	1	2
Diarrhea, Dysentery and Enteritis .....	14	10	24
Hernia, Intestinal Obstruction .....	3	1	4
Cirrhosis of Liver .....	10	1	11
Other Diseases of the Liver .....	3	1	4
Simple Peritonitis .....			
Appendicitis .....	3	3	6
Bright's Disease .....	26	21	47
Other Genito-Urinary Diseases .....	8	5	13
Puerperal Diseases .....	4	1	5
Senile Debility .....	3	1	4
Suicide .....	4		4
Injuries .....	19	19	38
All Other Causes .....	26	9	35
<b>TOTAL</b> .....	<b>314</b>	<b>188</b>	<b>502</b>

Still-born Children—White, 14; colored, 18; total, 32.

Population of City (estimated)—White, 283,000; colored, 106,000; total, 389,000.

Death Rate per 1,000 per Annum for Month—White, 13.31; colored, 21.28; total, 15.49. Non-residents excluded, 12.93.

## METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure. . . . . 30.04  
Mean temperature. . . . . 68  
Total precipitation. . . . . 7.88 inches  
Prevailing direction of wind, southeast.



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